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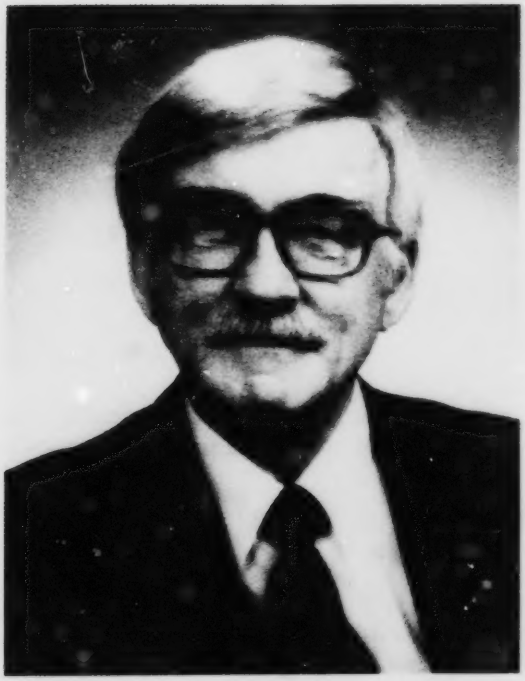
Proceedings of the Royal Society of Canada
Déliberations de la Société royale du Canada
1990

"studiis eodem diversis nitimur"
"different paths, one vision"
«chemins divers, visée commune»



L'HONORABLE JULES DESCHÊNES

Président de la Société royale du Canada
President of The Royal Society of Canada

THE ROYAL SOCIETY OF CANADA

The Royal Society of Canada is a national academy whose object is the promotion of learning and research in the arts and sciences. It was founded in 1882 by the Governor General of Canada, The Right Honourable the Marquess of Lorne, and is incorporated by an Act of the Parliament of Canada of 1883.

It is organized into three Academies:

Académie I: l'Académie des lettres et des sciences humaines de la Société royale du Canada

Academy II: Academy of Humanities and Social Sciences of the Royal Society of Canada

Academy III: Academy of Science of the Royal Society of Canada

To fulfil its object it:

- elects distinguished scholars to its membership;
- awards medals and prizes for excellence in learning and research in the arts and sciences;
- organizes an annual meeting at which papers are presented on all aspects of learning and research, and which usually includes a symposium on a topic of concern to all three academies of the Society;
- publishes *Transactions*, *Proceedings* and *Calendar* annually;
- organizes regional, national, and international symposia on topics of current interest and importance, usually with strong participation from several disciplines;
- publishes the proceedings of symposia when it is appropriate;
- undertakes national and international projects of various kinds for the advancement of learning and research.

LA SOCIÉTÉ ROYALE DU CANADA

La Société royale du Canada est une académie nationale qui a pour objet de contribuer au développement du savoir et de la recherche dans les arts et les sciences. Fondée en 1882 par le Gouverneur du Canada, le très honorable marquis de Lorne, elle a été constituée par loi du Parlement canadien en 1883.

La Société comprend trois académies :

Académie I : L'Académie des lettres et des sciences humaines de la Société royale du Canada

Academy II: Academy of Humanities and Social Sciences of the Royal Society of Canada

Académie III: L'Académie des sciences de la Société royale du Canada.

Les objectifs de la Société sont:

— l'admission par voie d'élection d'auteurs distingués;
— l'attribution de médailles et de prix pour récompenser le haut savoir et la recherche dans les arts et les sciences;
— la tenue de réunions annuelles où l'on présente des communications traitant de tous les aspects du savoir et de la recherche, et qui comprennent habituellement un colloque sur un sujet apte à intéresser les trois académies de la Société;
— la publication chaque année des Mémoires, des Délibérations;
— la tenue de colloques internationaux, nationaux et régionaux sur les sujets d'actualité importants, ordinairement à caractère interdisciplinaire;
— la publication des comptes rendus de colloques d'intérêt général;
— divers projets d'ordre national et international visant à encourager le savoir et la recherche.

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The Royal Society of Canada
La Société royale du Canada

FOUNDER/FONDATEUR: THE RIGHT HONOURABLE MARQUESS OF LORNE, K.T., etc. *(when Governor General of Canada in 1882) (lorsqu'il fut Gouverneur général du Canada en 1882)*

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OFFICERS OF ACADEMIES 1990-91
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Secretary: A. Kirk Grayson, M.A., Ph.D.

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Vice-President/Vice-President: Antoine D'Iorio, B.S., M.A., Ph.D.

Secretary/Secrétaire: Bryce Kendrick, Ph.D., D.Sc.

MEMBERS OF COUNCIL 1990-91
MEMBRES DU CONSEIL 1990-91

The Council of the Society consists of the aforementioned officers of the Society and of the Academies, together with the following members/Le Conseil de la Société se compose des membres du bureau de la Société et des Académies ainsi que des membres dont les noms suivent :

Honorary Editor/Directeur des publications: James A. Leith, B.A., M.A., Ph.D.

Honorary Librarian-Archivist/Bibliothécaire-archiviste: Guy Sylvestre, O.C., L.Ph., M.A., D.Litt., D. Bibl.

Foreign Secretaries/Secrétaires pour les affaires étrangères: Paul LeBlond, B.A., B.Sc., Ph.D., and Jacques Légaré, B.Sc., Dipl.Démog., Doc.Démog.

Symposia Chairman/Présidente de colloques: Shirley Neuman, B.A., M.A., Ph.D.

Awards Chairman/Président de médailles: Denis M. Shaw, B.Sc., M.Sc., Ph.D.

Member-at-large/Membre à titre personnel:
Charlotte E. Keen, B.Sc., M.Sc., Ph.D.

COMMITTEES AND FELLOWS 1990-91
COMITÉS ET MEMBRES 1990-91

Members of committees of the Society and of the Academies are listed in the 1990-1991 *Calendar*/Les noms des membres des comités de la Société et des Académies paraissent dans la brochure intitulée *Annuaire, 1990-1991*.

The list of Fellows will be found in the *Calendar*/La liste des membres paraît dans l'*Annuaire*.

Report of the Honorary Secretary for the Year

1989-1990

COUNCIL ACTIVITIES/ACTIVITÉS DU CONSEIL

The Council met four times and the Executive seven times. An account of the year's business including the audited financial statement is given in the *Report of Council* which was distributed to all Fellows.

The Academies reported the election of sixty persons. The names, categories and citations of the Fellows elected are given in the report of the Annual Meeting below.

The Society awarded the Thomas W. Eadie Medal to F.P. Ottensmeyer; the Flavelle Medal to Peter W. Hochachka; the Jason A. Hannah Medal to Anthony A. Travill; The McLaughlin Medal to Tak Wah Mak; the Rutherford Memorial Medal in Chemisty to Michael D. Fryzuk and the Rutherford Memorial Medal in Physics to Scott Tremaine; The J.B. Tyrrell Historical Medal to Hubert Charbonneau and Jacques Légaré; and the Bancroft Award to Steven D. Scott. The citations appear on pages 31 to 37.

The Society received 14 applications for the NATO Research Fellowship which were dispatched to Brussells. Barry M. Gough and Alexander Moens were selected.

ANNUAL MEETING/ASSEMBLÉE ANNUELLE

The Annual Meeting was held on 2 to 6 June 1990 in Victoria, British Columbia, where the Society was received by the University of Victoria. Those present were:

ACADÉMIE I

Pierre Camu, Hubert Charbonneau, Roger Comtois, Roger Dehem, Jeanne Demers, Jules Deschênes, Gérard Dion, Jean-Denis Gendron, Gérard Hébert, Pierre Hurtubise, Maryvonne Kenderji, Jacques Légaré, Clément Moisan, Gilles Paquet, Paul-Hubert Poirier, Yves Ouellette, Guy Sylvestre, Jean-Paul Vinay.

ACADEMY II

Clarence Lyle Barber, David J. Bercuson, Anthony Birch, J.F. Bosher, Charles B. Bourne, David Braybrooke, R. Craig Brown, David A. Campbell, Peter C. Dodwell, John F. Graham, A. Kirk Grayson, Leslie Green, N.E. Griffiths, Francess Halpenny, Henry S. Harris, Warren E. Kalbach, Evelyn Kallen, Karol Krótki, Jean A. Laponce, James Leith, Patricia Marchak, Leo Margolis, Juliet McMaster, Rowland McMaster, Kenneth McRae, John Meisel, Jan Narveson, Blair Neatby, Shirley C. Neuman, Margaret A. Ormsby, Daniel Overmyer, Grenfell Patey, Richard Pearson, Stanley Rachman, Anthony H. Richmond, Anthony W. Riley, William Robbins, Gideon Rosenbluth, Ann Saddlemyer, A.D. Scott, William Shea, David C. Smith, Nico Stehr, Andrew Stewart, Archibald Thornton, Susan Mann Trofimenkoff, P.B. Waite, Donovan W. Waters, Sydney F. Wise, Alexander Woodside, Mark Zacher, Morris Zaslow.

ACADEMY/ACADÉMIE III

Nicholas Anthonisen, John Armstrong, Christopher R. Barnes, Alan H. Batten, Joyce Beare-Rogers, Charles J. Bishop, Pierre Bois, Edward Bousfield, Arthur Carty, Colin Clark, Garry Clarke, Samuel Dales, Kenneth Davey, Edward Donaldson, David Dunlop, Geoffrey J. Eales, Robert Folinsbee, Peter A. Forsyth, Sydney M. Friedman, Hubert Gabrielse, Eville Gorham, Christopher Gray, F. Kenneth Hare, Peter W. Hochachka, Edward Irving, David Jones, Charlotte Keen, John Laidlaw, Karl P. Lederis, Louis Legendre, Claude Leroy, Roy Lindseth, Peter T. Macklem, Tak Wah Mak, Cedric Mann, Alastair Matheson, William H. Mathews, John McCarter, Ernest McCulloch, Robert A. McKellar, Digby J. McLaren, Anthony Merer, David Michel, Norman Moody, Lawrence A. Mysak, E.R. Ward Neale, Barry Newman, Timothy R. Parsons, Beverley Pearson Murphy, Howard Petch, Richard P. Pharis, A.G. Phillips, George L. Pickard, Edward Piers, Elton Pounder, Donald A. Ramsay, John Robson, Betty Roots, Ernest Roots, Robert Salter, Steven Scott, Denis M. Shaw, Edgar Shaw, Rose Sheinin, Robert Snider, A.T. Stewart, Boris Stoicheff, Kenneth Storey, Yasushi Takahashi, Richard

Taylor, John E. Thompson, James Trotter, George Volkoff, John Wheeler, A.J. Vijh.

GENERAL MEETING/ASSEMBLÉE GÉNÉRALE

The General Meeting was held at 20:00 on Sunday, 3 June 1990, in the University Centre Auditorium of the University of Victoria.

Dr. S.E. Scully, Vice-President Academic of the University of Victoria, welcomed the Fellows and their guests. The President thanked Dr. Scully, after which he invited the Presidents of the three Academies to introduce the new Fellows whose citations appear below.

ACADEMIE DES LETTRES ET DES SCIENCES HUMAINES

YVAN ALLAIRE, professeur titulaire, Département des sciences administratives, Université du Québec à Montréal, a fait ses études de doctorat au Sloan School of Management du Massachussetts Institute of Technology. Ses articles ont été publiés dans les revues scientifiques les plus prestigieuses : *Journal of Marketing Research*, *Sloan Management Review*, *Organization Studies* et *Strategic Management Journal*. La revue *Gestion*, en 1982, et le *Sloan Management Review*, en 1985, ont tour à tour primé ses textes. Le professeur Allaire a fourni de nombreuses contributions à des ouvrages collectifs, enseigné des séminaires importants sur la planification stratégique et participé à de nombreux conseils et comités d'orientation. Son influence sur l'évolution des organisations des secteurs public et privé au Québec a été considérable et il a été l'un des grands leaders dans le monde des études en stratégie d'entreprise au Québec et au Canada français.

GILLES BIBEAU, directeur, Département d'anthropologie, Université de Montréal, possède une expérience internationale de recherche dans le domaine des déterminants sociaux de la santé. À ce titre, il a agi en tant que conseiller de l'OMS et de l'ACDI tant en Afrique qu'en Amérique latine. Il a, à son crédit, de nombreuses subventions de recherche qui ont donné lieu à des ouvrages et publications dans plusieurs revues spécialisées. Leader canadien et international en anthropologie médicale, il dirige en ce moment pour le Conseil québécois de la recherche sociale d'importants travaux sur la spécificité de la recherche sociale en santé mentale.

RODOLPHE DE KONINCK, professeur titulaire, Département de géographie, Université Laval, est l'un des principaux artisans du renouvellement de la géographie; ses contributions épistémologiques ont grandement favorisé l'enrichissement des pratiques de la discipline. Rédacteur des *Cahiers*, il a dynamisé les débats, encourageant tout à la fois rigueur et ouverture. Il a publié sept livres dont *Les Cent-Iles* (1970), *The Green Revolution* (1977) et *Le Monde à la carte* (deux volumes). Ses travaux sur l'Asie (doctorat de l'Université de Singapour) publiés dans quatre langues ont acquis une renommée internationale. Il est membre de la Fondation Asie Pacifique du Canada.

EZZAT ABDEL FATTAH, professeur, École de criminologie, Simon Fraser University, est un des grands pionniers de la criminologie au Canada. Ses travaux sur la victimologie et sur la peine de mort ont reçu des échos dans un grand nombre de pays et ses publications ont résulté en actions importantes. Considéré comme un maître incontesté au plan international, il a été chargé de missions scientifiques et d'expertises dans diverses parties du monde et a enseigné comme professeur invité dans nombre d'universités européennes réputées.

MICHAEL FLORIAN, professeur titulaire, Département d'informatique et recherche opérationnelle, Université de Montréal, est le leader mondial dans l'un des secteurs de la planification des réseaux de transport, celui de la représentation des choix d'itinéraires en présence de plusieurs modes concurrents. Il est l'auteur de plus d'une cinquantaine d'articles dans des revues internationales, de plusieurs douzaines de communications et il a édité trois livres dans ce domaine. Ses travaux ont été non seulement déterminants au plan théorique, mais les logiciels interactifs de planification qu'il a conçus et développés en équipe sont utilisés à l'échelle mondiale : le logiciel EMME/2, pour les réseaux de voyageurs, dans plus de 160 villes de tous les continents et le logiciel STAN, pour les réseaux de marchandises, dans une dizaine de pays. Il est l'un des grands animateurs du Centre de recherches en transport à l'Université de Montréal, et il a joué, à ce titre, un rôle déterminant sur la scène universitaire québécoise et canadienne.

MARYVONNE KENDERGI, professeure émérite de l'Université de Montréal, communicatrice hors pair et vulgarisatrice engagée de la musique, en particulier de la musique contemporaine, a bien mérité de la société québécoise et canadienne. Un parcours impressionnant en effet que le sien, de ses débuts comme pianiste de concert et sa première implication dans les Jeunesses musicales de France, jusqu'aux

nombreuses émissions de radio et de télévision qu'elle a animées au Québec, parallèlement à une carrière de professeure-conférencière dans les universités Laval, McGill, de Montréal et surtout d'ambassadrice à l'étranger de la musique canadienne. Les distinctions qu'elle a reçues — prix Lynch Staunton du Conseil des Arts, Calixa-Lavallée de la Société Saint-Jean-Baptiste, Ordre national du Québec et celui des Arts et des Lettres de la République française — ne faisaient que reconnaître l'importance indiscutable de son apport passionné à une meilleure connaissance et à une plus large diffusion des différentes formes que prend la musique à travers les époques.

YVES OUELLETTE, professeur titulaire et ancien doyen, Faculté de droit, Université de Montréal, est un auteur et un professeur réputé, spécialiste du droit administratif. Cette discipline, qui n'apparaissait pas au programme des facultés de droit du Québec, il y a trente ans, constitue maintenant une matière de première importance dans les programmes des facultés de droit du Québec. C'est à nos collègues le professeur Gilles Pépin à Montréal, le professeur Dussault à Laval et le professeur Ouellette que le droit québécois doit cet enrichissement tant en doctrine qu'en pratique au Québec. Les recommandations du rapport «Ouellette» sur les tribunaux administratifs sont retenues par le Gouvernement. Les tribunaux administratifs et le monde juridique profiteront de l'œuvre du professeur Ouellette.

PAUL-HUBERT POIRIER, professeur de patrologie et d'histoire, Département de l'histoire des religions et patrologie, Université Laval, est professeur de patrologie et d'histoire de l'Église à l'Université Laval. Spécialiste des langues orientales : syriaque, égyptien, pharaonique, copte, éthiopien (guèze), arménien et géorgien, il est récipiendaire de la bourse Killam (1988-90), et responsable du Projet Nag Hammadi (Égypte). Il dirige la collection *Bibliothèque copte de Nag Hammadi*, qui comprendra éventuellement 40 volumes. Il a contribué des articles (80) à des revues savantes : *Laval Théologique et Philosophique*, *Studies in Religion*, *Le Museon*, *Science religieuse*, *Archaeologia*, etc., il compte déjà à son crédit cinq volumes et a aussi collaboré à huit ouvrages collectifs.

NORMAND SÉGUIN, professeur titulaire, Département de sciences humaines, Université du Québec à Trois-Rivières, est un spécialiste de l'histoire rurale et régionale québécoise du XIX[e] siècle. Il a publié, seul ou avec d'autres, une demi-douzaine d'ouvrages, des douzaines d'articles et produit des vidéos, des dossiers statistiques et cartographiques. Ses recherches ont renouvelé le champ de l'histoire régionale et rurale; par

l'étude du quotidien, des réseaux de relation, des structures économiques et des représentations mythiques, il a cerné les cohérences d'une société en mouvement. Son apport est aussi important dans l'étude de la colonisation et l'analyse des rapports entre l'agriculture et la forêt. Ses travaux lui ont valu les prix Lionel-Groulx et Guy-Frégault, ainsi qu'un certificat de la Société historique du Canada pour sa contribution à l'histoire régionale. Par ailleurs, soulignons son implication dans l'encadrement de la recherche : que ce soit dans les organismes professionnels (IHAF, ACFAS, INRS), à l'UQTR, où il a été l'artisan principal de la mise sur pied du Centre de recherches sur le Québec, ou au Fonds FCAR, où il a présidé de nombreux comités, dont celui sur la réforme du programme «Équipes», son action a été primordiale dans ce domaine et a profité à la collectivité.

VAIRA VIKIS-FREIBERGS, professeure titulaire, Département de psychologie, Université de Montréal, est une scientifique qui a su se distinguer dans trois domaines de recherche. Ses travaux de psychopharmacologie ont contribué à la compréhension des mécanismes de l'hyperkinésie infantile. Ses études en psycholinguistique ont donné lieu, entre autres, à un livre de référence fort utilisé, *La fréquence lexicale au Québec*. Cependant, c'est davantage au niveau de l'analyse structurale de la poétique de chansons folkloriques baltes que Madame Vikis-Freibergs fait autorité dans le monde occidental. Son expertise scientifique a d'ailleurs été reconnue par sa nomination à divers comités nationaux et internationaux, qu'elle a le plus souvent présidés.

THE ACADEMY OF HUMANITIES AND SOCIAL SCIENCES

JULIA CHIA-YI CHING, Department of Religious Studies and East Asian Studies, University of Toronto, took her Ph.D. at the Australian National University and taught there and at Yale before accepting an invitation from the University of Toronto. She has been a Distinguished (Mellon) Visiting Professor at Rice University and held visiting professorships at Tübingen and Marburg. Her outstanding scholarly achievements are embodied in seven monographic length studies, four in English, two in Chinese, and one in German, 17 chapters of books, 15 refereed articles, and numerous contributions to encyclopaedias. She has served on no fewer than six editorial boards of learned journals. She is the most distinguished scholar in East Asian philosophy and comparative religious studies in Canada and one of the best known in that field in the world.

HAROLD COWARD, Institute for the Humanities, University of Calgary, is a professor of Religious Studies whose research has carried him widely into psychology, philosophy, and East Indian religious thought. The particular significance of his scholarship lies in the relations he has made in the historiography of world religions between eastern and western thought through his knowledge of both Jung and Derrida and is seminal in its understanding of the profound analysis that may be made in the area of the sacred. His work as an administrator at both university and national levels has been outstanding. Dr. Coward is among the foremost North American scholars of religious studies.

GERHARD DÜNNHAUPT, Department of German and Comparative Literature, University of Michigan, is one of the world's most distinguished scholars in German Baroque Literature; his reputation as a brilliant bibliographer and editor is second to none; his monumental three-volume *Bibliographisches Handbuch der Barockliteratur* will remain the standard reference work in the field for decades to come. His training as a printer allows him to combine fruitfully expertise in all facets of book production with immense academic learning, making him unique among 17th century scholars today. Although he has taught for almost three decades in the United States, he remains one of the brightest jewels in the crown of Canadian scholarship.

PATRICK GRANT, Department of English, University of Victoria, is a writer whose work reflects his broad interest in the relationships between literature, theology, and the history of science. The English Renaissance is his primary field, and he has written major studies of devotional poetry, the connections between images and ideas, and the influence of scientific method on literature. His work in other periods demonstrates a deep understanding of religious thought in the West. Major studies include the problem of belief in twentieth-century literature, the tradition of Western mysticism, and the New Testament. In his current work, he has entered the lively debate about literary theory in terms of broad cultural issues.

NAOMI GRIFFITHS, Faculty of Arts, Carleton University, is the most important English-speaking historian of the Acadians. Her reputation has led to lecture tours sponsored by governments and universities across the Atlantic as well as in North America. Even more impressive, her work is fully accepted by the Acadians themselves. There is not a grain of prosiness in her writing; it is brisk, trenchant, as if she were impatient to get at the truth. Her history of the Acadians is based upon extensive

research in municipal archives on both sides of the Atlantic, and her most recent monographs have widened our perceptions of Acadian society, indeed, laid foundations for distinctive interpretation of Acadian historical experience. There is really no one close to her in quality; one wonders what Acadian history could have been without her.

HOLGER W. HERWIG, Department of History, University of Calgary, is in the front rank of scholars of modern German diplomatic and military history. He has several related areas of specialization centering on the history of modern Germany and has written a large number of books and articles covering the period of the mid-1880's to the end of the First World War. His work has been important in illuminating Germany's strategic vision at the end of the 19th Century. He combines impressive archival research with an insightful analysis of the way in which political and other factors contributed to Imperial Germany's global vision.

LINDA HUTCHEON, Department of English, University of Toronto, is pre-eminent among theorists of postmodernism as an international phenomenon and among those studying postmodernism in the Canadian arts. Her work includes six major books, 40 articles published in prestigious academic journals in England, Canada, the United States, France and Hungary. She has held the Robarts Chair in Canadian Studies at York University during 1989 and has been the recipient of a two-year Killam Fellowship. Her work in postmodernism has been impressively wide-ranging and thorough in its scholarship and original and insightful in its conclusions. Considering postmodernist manifestations in literature, the visual arts, and architecture, she has made a major contribution to cultural studies, literary studies, and Canadian studies.

WILLIAM LEISS, Department of Communication, Simon Fraser University, is a scholar whose versatile studies of the impact of technological change intersect a number of disciplines: the studies began in philosophy, but quickly branched into political science and then broadened into sociology, to name three disciplines officially represented in Academy II. He has published books and articles in each of these disciplines. His achievements in the combination — and under the auspices of environmental and communication studies as well — are unique and uniquely valuable, both to the academic community and to the public.

ROWLAND D. McMASTER, Department of English, University of Alberta, has had a long and distinguished career as a specialist in the rich field of Victorian studies. One area of excellence is his outstanding contribution to the development of the academic profession in Canada and to the pursuit of the highest standard of literary scholarship. For the past thirty years, he has been active as a publishing scholar, textual editor, journal editor, convenor of learned conferences, consultant on academic matters and prominent member of the profession of the university teaching of English in Canada. To an unusual degree, he has combined scholarly work of distinction with an exceptionally strong commitment to teaching and administrative and professional responsibilities on a national and international scale.

DAVID FATE NORTON, Department of Philosophy, McGill University, has, on the strength of his numerous publications, been recognized both in America and in Europe as one of the outstanding historians of eighteenth century British philosophy. In particular, he is a leading authority on the thought of David Hume, both as an historical and a philosophical writer. He has been entrusted with the preparation of the new critical edition of Hume's works to be published in 8 volumes by the Princeton University Press. His textual studies, his interpretation of Hume's moral philosophy, his comments on the traditional emphasis on Hume's epistemology are characterized by the strictest attention to detail, the mastery of previous research, a sharp critical sense, the originality of his approach and the soundness of his conclusions. The same features distinguish his presentation of Scottish common-sense philosophy.

DOUGLAS ROBB OWRAM, Department of History, University of Alberta, has made major contributions to our understanding of Canadian history through several books on the Department of Public Works. In *Promise of Eden: The Canadian Expansionist Movement and the Idea of the West, 1856-1900*, he examined how the perception of the north-west changed from that of a desolate wilderness to that of a promising and fertile agricultural frontier. He also wrote on Canadian intellectuals, especially social scientists, who prepared the way (and helped implement) the Ottawa government's commitment during the Second World War to social security and management of the Economy. These books are highly original in conception and execution, written with force and clarity, and with a sceptical detachment.

MICHEL PARADIS, Department of Linguistics, McGill University, writes on language and thought in bilinguals and in polyglots and has gained worldwide recognition. To clarify the problem, he has concentrated on the analysis of the particular defects caused by aphasia. The "Bilingual Aphasia Test" which he devised for 45 languages, with different criteria of adaptation for each of them, is used in many countries. Published in 25 languages, it is ready for publication in 20 others. His advice is sought and his cooperation invited by the authorities of many nations with a multilingual population, in Europe and Asia. His work presents one of the rare cases where neurolinguistic theory has had an immediate successful practical application. He has made a significant contribution to the study of the relationship between language, brain and mind.

JULIAN DAVID PAYNE, Common Law Section, Faculty of Law, University of Ottawa, is among the very best known of Canadian academic lawyers for his many publications, his lecturing, and his support over the years for law reform in family law both by the federal government and by the provinces. It is not untrue to say that his is a household name in family law in Canada, and he has possessed that reputation for over twenty years. His pioneering work in advocating reform in the law of divorce, custody and access, and the processes of dealing with family problems in our society, has been recognized not only nationally, but internationally, where he is a frequent lecturer.

LEONARD WAYNE SUMNER, Department of Philosophy, University of Toronto, with an interest and footing in applied ethics remarkable for a philosopher of great theoretical powers, has made outstanding contributions to the characterization and defence of utilitarianism; and also to the analysis and firm delimitation of moral rights. On both subjects, and on the practical question of abortion as well, he has established himself as a leading figure in contemporary philosophical discussion. His attention to imperfect information is one more sign that his capacity for rigorous abstract theorizing keeps steadily in view the problems of practice. He would be remarkable among philosophers for his theoretical arguments alone, and remarkable for his contributions to applied ethics. He is twice over remarkable to have combined an interest in applied questions with powerful original theorizing.

KINYA TSURUTA, Department of Asian Studies, University of British Columbia, is the foremost scholar of modern Japanese literature in Canada and one of the best in the world. He has written four books and

edited eight, in both Japanese and English. He has also edited two sets of conference proceedings and published scores of articles, book chapters, and reviews. He has received a UBC Killam Faculty Research Prize, two UBC Killam Senior Fellowships and nine more additional fellowships and research grants from both Canadian and Japanese sources. He has twice been invited to the National Institute of Japanese Literature in Tokyo as a visiting professor and research fellow. Beyond all this, he is a wonderful teacher and a supportive and responsible colleague.

DAVID BOYER WATERHOUSE, University College, University of Toronto, took his degrees at Cambridge and worked at the British Museum before coming to the University of Toronto. His outstanding contributions to the study of Japanese arts, especially *ukiyo-e* (wood-block colour prints), are to be found in seven monographs, 26 refereed papers, and nearly 100 shorter essays. In Canada, he has been consulted by the Royal Ontario Museum and the National Gallery; abroad, by the Boston Museum of Fine Arts, the Art Institute of Chicago, the Philadelphia Museum of Art, and the Japan Foundation. For a quarter of a century, his views on *ukiyo-e* have been highly respected throughout the world. He is one of the most distinguished scholar in the East Asian field.

PAUL C. WEILER, Harvard University Law School, has made an outstanding contribution to a number of fields of law, in particular, labour law, constitutional law and torts. A Canadian, now at the Harvard Law School, his major books include: *In the Last Resort: A Critical Study of the Supreme Court of Canada* (1974); *Reconcilable Differences: New Directions in Canadian Labour Law* (1980); and *The Law at Work: Labour and Employment in the Legal System* (1990). He has been involved with a number of important public committees and commissions ranging from his early work as a research consultant for the McRuer Royal Commission on Civil Rights to his latest role as Chief Reporter for the American Law Institute's Personal Injury and Tort Reform Project. He continues to be a very lively participant in Canadian affairs, frequently contributing to our academic and public discussions. His career as a teacher, scholar and policy advisor to governments has been one of great influence and distinction.

JOHN HAYDEN WOODS, Department of Philosophy, University of Lethbridge, has written extensively in logical theory, and has applied his insights in that fundamental field of philosophy to difficult and important problems in literary theory and social ethics. He has written six books and monographs, edited four others, and been the author or co-author of

close to eighty essays and reviews. These works have increased our understanding of some of the key concepts of our reasoning, and delved with insight into contemporary moral debates and traditional metaphysical problems. It has been done while he has also been exercising major administrative responsibilities such as a university Presidency and the editorship of the official journal of the Canadian Philosophical Association.

ALEXANDER B. WOODSIDE, Department of History, University of British Columbia, established himself as a leading historian in both Modern Chinese and Modern Vietnamese history by his first book, *Vietnam and the Chinese Model* (Harvard University Press, 1971), which was a pioneering study of the interaction of indigenous cultural patterns and Chinese influence in structuring Vietnamese society and government in the nineteenth century. Since then, he has published further important studies on modern Vietnam and has also made innovative contributions on the history of education in the late imperial period in China.

THEODORE CUYLER YOUNG, Jr., Royal Ontario Museum, whose field-work and subsequent publications raised archaeological research in Western Iran (Iron Age) to a new plateau, was directly responsible for an explosion of field-work on the part of various foreign archaeological expeditions during the 1960's and 1970's. Dr. Young then went beyond this to define the longest and most detailed archaeological sequence in all of Western Iran covering a time span of 6,000 years from the Neolithic through to the Late Iron Ages. No other individual scholar has made such a profound, sustained, and seminal contribution to the archaeology of Western Iran.

THE ACADEMY OF SCIENCE / L'ACADÉMIE DES SCIENCES

GUY BÉLANGER, chef de service, Chimie des matériaux, Institut de recherche d'Hydro-Québec, s'est distingué par ses nombreuses contributions originales sur plusieurs points d'électrochimie appliquée et de génie électrochimique. Par exemple, il a développé des moniteurs de gaz électrochimiques nouveaux (ex. Hydran 201) et a étudié les réactions d'électrodes d'électrolyseurs à hydrogène et des piles à combustible. Il a aussi développé de nouvelles techniques électroanalytiques utilisées dans les diélectriques de puissance tels que les transformateurs à huile. Ses innovations lui ont valu deux bourses prestigieuses en recherche ainsi que des brevets d'invention pour trois nouveaux produits. Il est membre de

l'Institut des ingénieurs en électricité et en électronique et de l'Institut de chimie du Canada.

ALAIN CAILLÉ, professeur, Département de physique, et vice-recteur à la recherche, Université de Sherbrooke, est un théoricien de marque dans le domaine de la matière condensée en physique qui avait prédit un certain nombre d'effets variés de systèmes compliqués se basant sur de simples modèles qu'il a développés. Les résultats vont de la prédiction d'un type d'ordre à longue distance dans des crystaux liquides smectiques qui était contraire aux idées établies, et qui est présentement observée expérimentalement à la prédiction récente d'un nouveau comportement de diffusion latérale près de la transition de fusion de doubles couches lipidiques. Son usage de modèles simples afin d'acquérir une compréhension des sytèmes physiques témoigne d'un talent exceptionnel.

DAVID J. DUNLOP, Professor, Department of Physics, University of Toronto, ia a geophysicist whose research is on the magnetism of rocks, in particular those rocks which carry remanent magnetism by which the ancient magnetic field of the earth is recorded. He and his students have recently utilized measurements of this remanence to study the tectonic processes which affected the upthrust strata of the Kapuskasing Structural Zone, and the orientation and magnitude of Earth's magnetic field in Archean times. Professor Dunlop's major contribution to the subject of rock magnetism lies in studies of the minute magnetic domain structures which carry the property of remanence in rocks, and how these structures may be altered by chemical processes. These studies have led to a number of awards beginning in 1983 with a Killam Research Fellowship, followed by his election as a Fellow of the American Geophysical Union and more recently by the award of a Senior Research Fellowship by the Japan Society for the Promotion of Science. His recent fundamental work on the nature and distribution of the magnetism within rocks has capped a distinguished career as an innovative scientist and educator.

JOEL S. FELDMAN, Professor, Department of Mathematics, University of British Columbia, has made many deep and significant contributions to mathematical quantum field theory; for example, the construction and analysis of the ϕ^4_3 model, sharp bounds on general Feynman graphs, an analysis of singularities in the complex Borel plane for ϕ^4 theories, and a proof of renormalizability of QED_4. With Magnen, Rivasseau and Sénéor, he constructed the (non-superrenormalizable) infrared ϕ^4_4 and Gross- Neveu$_2$ models, by developing powerful new techniques (phase space expansions) that now take accessible four-dimensional

asymptotically free gauge field theories. He has become one of the world's leading field theorists.

THOMAS GEOFFREY FLYNN, Professor, Department of Biochemistry, Queen's University, has contributed significantly in two areas of biochemical research. He was a participant in the pioneering work on the isolation, purification and characterization of the new peptide hormone cardionatrin. His laboratory determined the amino acid sequence, that is, the basic structure of this heart hormone. More recently, he has participated in the isolation of the kidney receptor for cardionatrin. Secondly, Dr. Flynn has contributed in a major way to our understanding of the biochemistry of aldose reductases. His purifications and kinetic studies have led to an organized classification of these enzymes.

BARRIE JAMES FROST, Professor, Psychology and Physiology, Queen's University, a full professor in Psychology and associate professor of Physiology at Queen's University, has an international reputation of the highest order for his work on vision research and the aid of the profoundly deaf. His research has been well supported by national granting agencies and has led to the publication of numerous scientific papers and to invited presentations at many national and international conferences. He has a number of important offices in the national research granting bodies and is currently the Group Chairman of Life Sciences in the National Sciences and Engineering Research Council. Recently, he was appointed by the Minister of Health as a National Health Research Scholar.

EVILLE GORHAM, Professor, Department of Ecology and Behavioural Biology, University of Minnesota, has made outstanding research contributions to the ecology of wetlands and of biogeochemical cycles. His pioneering work includes the chemistry of bogs, peat as a sink for elements (including radioactive isotopes), recognition and description of acid precipitation in U.K. and Sweden in 1953, 15 years before acid rain was generally recognized, and early studies on smelter impacts at Sudbury on lake biota (1960). He continues to contribute seminal papers on the impact of atmospheric processes on natural ecosystems and has authored over 121 papers. Dr. Gorham's present research includes the ecosystems of Nova Scotia and Newfoundland. He is a member of the Tri-Academy Committee on Acid Rain.

CHRISTOPHER C. GRAY, Professor, Department of Physics, University of Guelph, is a leading theoretician in the fields of molecular physics and molecular liquids, who has made many outstanding contributions. These include the effects of intermolecular forces on the spectral lines of molecules, and the perturbation theory for the structure of molecular liquids and more recently of polar liquids. The success of his theoretical work in comparisons with experimental results have been striking and have given him his current leadership position in this field. Moreover, his ability to achieve similar successes over a very wide range of properties of molecular liquids has been a notable feature of his career.

YVAN GUINDON, directeur et vice-président de la recherche et du développement, Bio-Méga Inc., est l'un de nos plus dynamiques et distingués chimistes organiques au Canada de moins de 40 ans. Il jouit d'une renommée mondiale pour ses contributions éminentes dans le domaine de la chimie organique, biorganique et médicinale et ce, en moins de dix années après avoir complété ses études de troisième cycle. Son ascension météorique dans les rangs d'un environnement industriel hautement compétitif est le reflet de ses talents de scientiste et de leader. En plus de ses nombreuses activités, M. Guindon est professeur auxiliaire au Département de chimie de l'Université de Montréal.

C. KANTA GUPTA, Professor, Department of Mathematics, University of Manitoba, is an internationally acclaimed group theorist who works in many difficult areas of Combinatorial Group Theory. Her most startling discovery of 2-torsion in the free centre by metabelian groups has generated intense research throughout the world. Amongst her many other accomplishments is her work on the automorphism groups and especially on the existence of wild automorphisms in important cases. In the past number of years, she has been an important contributor to virtually every international conference on group theory.

FRANK CHRISTOPHER HAWTHORNE, Professor, Department of Geological Sciences, University of Manitoba, has utilized the most advanced physical and chemical analytical methods to characterize the detailed structure of an extreme variety of natural inorganic compounds. By the application of sophisticated mathematical techniques, he has unified the crystal-chemical relationships between nearly all types of non-metallic minerals and has provided a structurally sound basis for classifying all such minerals. This unified chemical-structural approach has enabled him to lay a fundamental groundwork for interpreting the

origin of the minerals in some of the earth's most important rock masses and ore deposits.

CHUJI HIRUKI, Professor of Plant Virology, Department of Plant Science, University of Alberta, has made major contributions to science in the area of plant virology and mycoplasmology. His pioneering work in elucidating fungal transmission of plant viruses and innovative approaches to plant mycoplasma diagnosis have been widely acclaimed. As its first President, he leads the International Working Group on Plant Viruses with Fungal Vectors. He has published extensively in journals of international repute, contributed important review chapters on several aspects of his research areas, and has been an invited speaker at numerous major international conferences, symposia, and workshops. His honours include the A.G. McCalla Research Professorship and the American Phytopathological Society Fellow Award.

GARY HORLICK, Professor of Chemistry, Department of Chemistry, University of Alberta, has always been at the leading edge of analytical spectroscopy research. He pioneered the use of photodiode arrays as detectors. He has made major contributions to the electronic processing of spectroscopic information, in Fourier transform applications, and in optimizing the use of digital and analog filters. He has led in the study of excitation mechanisms in inductively coupled plasmas, in innovative approaches to excitation in solid samples, and in the development of Michelson interferometry. As an analytical spectroscopist, he is a world leader.

JOHN J. JONAS, CSIRA/NSERC Professor of Steel Processing, Department of Mining and Metallurgical Engineering, McGill University, is Canada's foremost researcher on the hot deformation of steels. An internationally acknowledged leader in research in this area, he has published over 200 scientific papers, authored a book on the topic, and is currently CSIRA/NSERC Professor of Steel Processing at McGill. He is a pioneer in the application of mathematical modelling to hot deformation of metals and one of the first to demonstrate that results obtained in the lab could be used in the design of industrial rolling processes. Consequently, most Canadian steel companies and indeed many others around the world use the results of Professor Jonas' research in the operation of their rolling schedules.

KENNETH J. KASHA, Professor, Department of Crop Science, University of Guelph, has made fundamentally important contributions to crop science, including the development of a method for making haploid barley plants from immature embryos. This technique has been extremely useful in helping to understand mechanisms controlling chromosome replication and elimination and in the regulation of gene expression. It has also been useful in a practical sense in introducing new genes into barley that have improved both feed and malting properties. The impact of this work has brought him international and national recognition, including an honorary degree and the Ernest C. Manning Award for outstanding innovation by a Canadian. He has held important offices in Canadian Societies and was the founding Director of the Guelph/Waterloo Biotechnology Centre.

A. ROBERT W. McKELLAR, Senior Research Officer, National Research Council, has carried out distinguished work in many areas of high resolution infrared spectroscopy. He has studied van der Waals complexes of H_2 and the rare gases, providing precise information on their inter-molecular potentials. Recently, he obtained the first experimental verification of the presence of hydrogen dimers on Jupiter. He has developed the techniques of laser magnetic resonance and laser Stark spectroscopy using CO and CO_2 lasers and has obtained infrared spectra of many free radicals e.g. FO, CH_2, NH_2, as well as molecular ions e.g. H_3^+, HCO^+, HN_2^+. His work on the experimental determination of the singlet-triplet splitting in CH_2 is especially noteworthy.

ROBERT C. MILLER, Jr., Dean of Science and Professor of Microbiology, University of British Columbia, is a molecular biologist who has made significant contributions in several areas of biology, including studies on the genetics and molecular biology of DNA replication in bacteriophages, the total synthesis of a bacterial tRNA gene, the structure and expression of the tRNA genes of *Drosophila melanogaster* and the molecular biology and biochemistry of endo- and exo-cellulases from cellulomonas fimi. This latter work is notable both as fundamental science and as a pioneering effort to use genetic engineering to produce enzymes of potential benefit to Canadian industry and to promote university-industry interaction.

MARTUI RAM P. MURTY, Associate Professor (NSERC URF), Department of Mathematics, McGill University, is a leading expert in the application of analytic methods to the study of modular forms and elliptic curves, as well as to other related questions of number theory. He has

provided best-possible estimates of the coefficients of modular forms which had been previously obtainable only by use of unproved hypotheses. His work on Artin's conjecture on primitive roots provided the first unconditional evidence for this conjecture. He has made impressive progress towards a complete proof of conjectures of Serre and Lang-Trotter concerning primitive points on elliptic curves.

GRENFELL N. PATEY, Professor, Department of Chemistry, University of British Columbia, has made outstanding contributions to the theories of liquids, water and aqueous solutions. He was the first person to devise a practical computational method for integral equation theories based on the hypernetted chain (HNC) approximation that allows angular dependent potentials and many-body polarization effects to be properly treated. In consequence, the dielectric properties of water, electrolyte and colloidal solutions and various properties related to ion motion have finally been related almost quantitatively to the basic intermolecular interactions. Further, he has applied the HNC theory to discuss orientational ordering in liquid crystal systems. He has clearly established a worldwide reputation as a leading theoretical chemist.

ARTHUR DANIEL PELTON, professeur, Centre de recherche en calcul thermo-chimique, École Polytechnique, is recognized for his broad, pioneering, fundamental and applied contributions to chemical thermodynamics which have resulted in the development of databases, computational procedures for phase diagrams and equilibria in multicomponent solutions and the world's most powerful user-friendly system (F*A*C*T) to tackle thermochemical problems in far-flung fields ranging from geology to materials science and petrochemistry. He also holds a patent on a slip-casting technique for ceramics.

TREVOR PLATT, Chief of Biological Oceanography, Bedford Institute of Oceanography, has, by using the analytical mind of a physicist, brought to biological oceanography new concepts in quantitative ecology. He has developed mathematical descriptions of photosynthesis, statistical studies on the representativeness of samples and a theory on size structure of pelagic populations, reanalysed data on the global oxygen and CO_2 fluxes in the ocean and worked on the nature of the submarine light field in the context of remote sensing. His theoretical and practical work has been applied to practical problems such as determining the absolute yield of renewable resources from the sea and to the problem of atmospheric CO_2 accumulation. He is active on many international committees and has received 3 medals for his distinguished contributions to oceanography.

RENÉ RACINE, professeur titulaire et directeur de l'Observatoire du Mont Mégantic, Département de physique, Université de Montréal, a commencé sa carrière d'astronome par l'étude des amas d'étoiles. Il s'est servi de ces objets pour déterminer l'échelle des distances extragalactiques et aussi l'évolution de la composition chimique dans les galaxies rapprochées. Ensuite, il s'est transformé en bâtisseur de télescope, d'abord au Québec avec celui du Mont Mégantic, puis à Hawaii comme premier directeur canadien du Télescope France-Canada-Hawaii. Aujourd'hui, il s'intéresse à l'optique active qui peut permettre à un téléscope terrestre d'approcher la qualité d'image d'un téléscope spatial.

ERNEST FREDERICK ROOTS, Science Advisor, Department of Environment, is Canada's most versatile environmental scientist, with a world reputation. He has a remarkable command over the major field sciences, most especially in northern and alpine areas. His work in environmental policy-making has been influential, and is based on a deep intellectual grasp of the underlying sciences, including the relevant social sciences. He was awarded jointly the Patron's Medal of the Royal Geographical Society and the Massey Medal of the Royal Canadian Geographical Society. Most recently, he was appointed Canadian member of the Group of Environmental Experts by the Economic Summit, which has received reports from his group at the London, Bonn, Tokyo and Venice Summit meetings. He has thus been able to contribute to the rapid rise in international concern about environmental issues.

NANCY SHERWOOD, Associate Professor, Department of Biology, University of Victoria, is the world authority on the evolution of the gonadotropin releasing hormone (GnRH) neuropeptide family. She sequenced salmon GnRH in 1983 and has since studied the hormone as expressed in a variety of other vertebrates, which has enabled her to construct an evolutionary tree showing the changes that the molecule has undergone over the last 500 million years. Her work has led to the development of synthetic GnRH analogs, one of which is being manufactured and exported from Canada for use in a number of countries, particularly in SE Asia, to promote ovulation in cultured fishes.

RENÉ SIMARD, vice-recteur, à l'enseignement et à la recherche, Université de Montréal, est reconnu internationalement pour ses travaux de recherche sur le nucléole cellulaire et les effets des infections virales sur la matrice nucléaire. Sous sa direction, à l'Institut de cancer de Montréal, se crée un groupe de chercheurs autonomes dont les importants apports scientifiques vont conduire à la découverte de certaines

protéines spécifiques à la croissance, à la transformation virale et à la détection des empreintes virales du virus herpès. Il a montré une modification de l'enveloppe nucléaire aux sites d'assemblage des virions et précisé le rôle de la matrice nucléaire dans le processus de l'infection virale. La carrière du docteur Simard est celle d'un éminent scientifique qui a toujours continué à inspirer son groupe de recherche. Il eut, de plus, une grande influence sur le développement de la recherche biomédicale au Québec et au Canada.

KENNETH BRUCE STOREY, Professor, Institute of Biochemistry, Department of Biology, Carleton University, is a metabolic biochemist with major interests in metabolic regulation mechanisms and theory, molecular mechanisms allowing reversible freezing in insects and lower vertebrates (frogs and turtles), and molecular mechanisms in metabolic suppression as an adaptational strategy for surviving harsh environmental periods. Perhaps his most innovative contributions to date are in the area of mechanisms of natural freeze tolerance, in particular the role of metabolic adaptations underlying freezing protection and the maintenance of cell homeostasis for long term survival in the frozen state.

LAP-CHEE TSUI, Associate Professor, Departments of Medical Genetics and Biophysics, University of Toronto, has made major contributions in two areas of medical science. He and his colleagues have been instrumental in delineating the mechanisms of control of the formation of γ-crystallin, a critical functional protein of the ocular lens. More recently, Dr. Tsui was the leader of a team which succeeded in the localization and clonal isolation of the gene for cystic fibrosis, a highly prevalent and debilitating human genetic disease. This work represents one of the most significant and remarkable achievements of molecular biology and human genetics in recent years. It will almost surely lead to preventive and curative strategies in the near future for a disease that affects a significant fraction of the human population.

JAMES K.G. WATSON, Principal Research Officer, National Research Council, is distinguished for his work on the theory of molecular spectroscopy. His studies have led to simplifications of the fundamental Hamiltonian, recognition of specific symmetry properties, and a deeper understanding of the isotopic dependence of molecular parameters. An examination of centrifugal distortion effects led to a reduction in the number of parameters of asymmetric top molecules, and to the prediction of forbidden rotational spectra in certain non-polar molecules, including methane. His recent work includes the theory of the Jahn-Teller effect of

the Rydberg states of H_3 and D_3, the assignment of the Schüler bands of NH_4 and ND_4 and the assignment of the Schuster bands of NH_3 and ND_3.

RONALD G. WORTON, Geneticist-in-Chief, Hospital for Sick Children, Toronto, is a researcher whose group exploded into the forefront in the field of human genetics by identifying a translocation breakpoint of the Duchene muscular dystrophy gene (1984). Subsequently, he and his colleagues and L. Kunkel and his colleagues of Boston were successful in cloning fragments of the gene (1985). This work represents the breakthrough in our understanding of the nature of this gene. Already, the availability of the molecular probe allows prenatal diagnosis of the disease. This work sets the stage for future work in understanding the disease and in possibly reversing the defect by therapy.

GEORGE D. ZAMES, Macdonald Professor, Department of Electrical Engineering, McGill University, has made fundamental contributions to the theory of feedback control systems; in particular, he is recognized for his contributions to the stability theory of nonlinear systems and for his contribution to a new optimization approach for multivariable feedback systems. He was the first Canadian to be awarded the IEEE Field Award for Systems and Control only three years after that award was created. In addition, he has received numerous other awards for his basic contributions to the field and has written a great number of publications. His most recent contributions have been in the area of so-called H^{∞} theory, an area which he single-handedly initiated and which is now the "hottest" technical area in Control Theory.

OTHER MEETINGS/AUTRES RÉUNIONS

Society and Academy Committees met at business meetings from 2 to 6 June 1990.

A symposium sponsored by the Committee for Advancement of Women in Scholarship entitled *One Step Forward, Two Steps Back?/Un pas en avant, deux pas en arrière* was held on Sunday, 3 June 1990. The inaugural meeting of the Women's Caucus took place on Monday, 4 June 1990. The Academies held symposia and heard separate papers. The program of conferences appears as an appendix: Order of Proceedings for the Annual Meeting/*Programme de l'Assemblée annuelle* (pages 58 to 73). Selected papers will appear in the *Transactions/Mémoires*.

On Tuesday, 5 June 1990, Fellows and guests attended a reception at the Harbour Towers Hotel, Victoria, which was followed by the annual

dinner. The President of the Royal Society of Canada presented to the laureates the Awards of the Society for 1990. The citations for these appear on pages 31 to 37.

ANNUAL BUSINESS MEETING/ASSEMBLÉE GÉNÉRALE ORDINAIRE

The Annual Business Meeting was held in Room 159 of the Begbie Building of the University of Victoria, British Columbia, at 10:00 on Tuesday, 5 June 1990. Ninety-one Fellows were present.

The President, Dr. Digby J. McLaren, welcomed the members and called this 108th meeting to order.

MOTION *by Dr. A. Kirk Grayson, seconded by Dr. A.J. Vijh that the minutes of the 1989 Annual Business Meeting be approved as presented in the Proceedings, Fifth Series, Volume IV, 1989.* **CARRIED**

The minutes of the last meeting had been reviewed by the Executive and Council and all business arising would be dealt with within the agenda.

REPORT FROM THE PRESIDENT/RAPPORT DU PRÉSIDENT

The President reported that an update on the Corporate Plan of the Society would probably be included in the upcoming President's plans. He noted that the Society's annual report had been circulated to Fellows and approved by the Minister.

MOTION *by M. Gilles Paquet, seconded by Dr. R. Craig Brown that the President's report be accepted.* **CARRIED**

REPORTS ON ANNUAL BUSINESS MEETINGS FROM THE ACADEMIES/ RAPPORTS SUR LES ASSEMBLÉES GÉNÉRALES DES ACADÉMIES

Representatives of each Academy presented brief reports of the Annual Business Meetings of their respective academies.

Académie I : Le Président de l'Académie des lettres et des sciences humaines, M. Gilles Paquet, rapporte que pour l'année 1990-1991, les

officiers de l'Académie sont les mêmes qu'en 1989. Il souligne que quatre séances de Présentations avaient eu lieu durant l'année. L'assemblée annuelle de l'Académie des lettres et des sciences humaines a eu lieu le mardi 5 juin. L'Académie I entrevoit une série d'activités conjointes avec les autres académies. Le rapport complet de l'Académie I apparaît aux pages 38 à 44.

PROPOSITION *M. Gilles Paquet, appuyé par M. Pierre Camu, propose l'adoption du rapport.* **ADOPTÉE**

Academy II: The President, Dr. Jean Laponce, reported that the business meeting of the Academy of Humanities and Social Sciences was held on Tuesday, 5 June 1990. The Academy's goal of reducing administrative costs and increasing academic activities has been met. The terms for members of various committees and for officers of the Academy have been extended to three years. A complete report begins on page 44.

MOVED *by Dr. R. Craig Brown, seconded by Dr. J.A. Leith, that the report of Academy II be accepted.* **CARRIED**

Academy III: The President, Dr. E.A. McCulloch, reported that the Academy of Science held its annual business meeting on Tuesday, 5 June. He announced that the new President of Academy III was Dr. Christopher R. Barnes. The reorganization of the structure of the Academy of Science is being implemented through the formation of four divisions. Two events mark the increasing acceptance of the Society as a National Academy: one is the advice sought on the use of the space station through the division of applied science and engineering and the request to have a representative of Academy III on one of the Canadian Commission for UNESCO committees. Academy III has accepted the recommendations submitted by Professor LeBlond in his ICSU relations report. Dr. McCulloch requested that Society reports have a disclaimer to the effect that they reflect the views of the Society and not necessarily those of the individual committees and/or Fellows who prepare the report. A complete report appears on pages 51-57.

MOVED *by Dr. Christopher R. Barnes, seconded by R. Craig Brown, that the report of Academy III be accepted.* **CARRIED**

The President of the Society congratulated Dr. Barnes on his election as President of Academy III.

THE REPORT OF COUNCIL/LE RAPPORT DU CONSEIL

The President briefly explained that the Report of Council was much fuller than in the past.

MOVED *by Dr. A.J. Vijh, seconded by Dr. K.D. McRae, that the Business Meeting approve the 1989-90 Report of Council.* **CARRIED**

AMENDMENTS TO THE BY-LAWS/MODIFICATIONS AUX STATUTS

The Honorary Secretary presented the results of the mail ballot; this method, used for the first time, was selected because of the extensive changes to be made to the By-laws. Two hundred and sixty-two responses were received; of these two hundred and thirty-eight approved all By-law changes. Next June, revisions will be brought to three or four articles which received the greatest number of comments. He said he had been pleased to receive modifications and excellent suggestions. 95% of the responses related to semantics. «Je vous signale qu'à l'assemblée annuelle de 1991 des changements seront apportés à trois ou quatre articles qui ont soulevé le plus de commentaires. En effectuant le vote par courrier, la Société a reçu une réponse plus significative des intérêts et préoccupations des membres.»

MOTION *by M. Pierre Camu, seconded by M. Gilles Paquet, that the revisions to the By-Laws, conducted by a mail vote, be accepted.* **CARRIED**

The Honorary Secretary noted that the By-Laws of the Society were usually printed every five years. He proposed that, due to the number of changes affecting 43 clauses and articles, the Society proceed with the immediate publication of the revised By-Laws instead of waiting until 1992. Le Secrétaire propose qu'au lieu d'attendre jusqu'en 1992, la Société procède dès maintenant à la production et à l'impression des statuts.

Dans un autre ordre d'idées, le Secrétaire a poursuivi en disant : «On m'a confié la tâche de trouver un site pour le logement de la Société dans la région d'Ottawa. Je répète mon intention de trouver un édifice impressionnant.»

MOTION *by Dr. Jean Laponce, seconded by M. Gilles Paquet, that the report of the Honorary Secretary be accepted.* **CARRIED**

NEW OFFICERS/NOUVEAUX MEMBRES

Following a recommendation from the Committee for Nomination of Officials, the Council of the Society has approved the following nominations (effective June for a period of three years):

MOVED *by Dr. Jean Laponce, seconded by M. Gilles Paquet, that Drs. J. Légaré and P. LeBlond be jointly named Honorary Secretaries; that Dr. J.A. Leith be named Chair of the Editorial and Publications Committee and M. J.-D. Gendron be named Associate Chair of the Editorial and Publications Committee; that Dr. Shirley C. Neuman be named Chair of the Symposia Committee.* **CARRIED**

The search for an Honorary Treasurer-elect has proven to be difficult and members were invited to submit nominations for this position.

HONORARY TREASURER/TRÉSORIER

Dr. D.A. Ramsay commented briefly on the summary of activities of the Society. "The budget for this year is delicately balanced. The General Fund shows a positive balance. Some monies have been transferred to the Awards Fund. Fund-raising activities are underway; the provincial governments of Québec and Ontario have been approached. This will be followed by visits to the Prairies and the Atlantic provinces. The firm of Gordon L. Goldie Co. Ltd. has been hired and their report is expected for July. The Development Fund has received an important legacy."

MOTION *by Dr. L. Mysak, seconded by Dr. R.E. Folinsbee, that the report of the Honorary Treasurer be accepted.* **CARRIED**

APPOINTMENT OF AUDITORS FOR 1990-91/DÉSIGNATION DES VÉRIFICATEURS POUR 1990-1991

MOTION *by Dr. E.A. McCulloch, seconded by Dr. A. Kirk Grayson, that the firm McCay, Duff, and Co. be retained as auditors for 1990-91.* **CARRIED**

VOTE OF THANKS/VOTES DE REMERCIEMENTS

President McLaren expressed his gratitude to retiring members of the Executive: Dr. E.A. McCulloch as President of Academy III, Dr. Charles Smith as Foreign Secretary, Dr. John Robson as Honorary Editor, Dr. J.A. Leith as Chair of the Symposia Committee.

Dr. J. McMaster thanked the Society for its generous support of a conference on women held at the University of Calgary in April.

M. Pierre Camu a remercié messieurs G. Beaulne et R. Comtois pour leur collaboration à le révision du texte français des statuts.

Thanks were extended to the staff of the Society led by M.R. Dence and H. Bourguignon.

LE NOUVEAU PRÉSIDENT SIÈGE AU FAUTEUIL PRÉSIDENTIEL/NEW PRESIDENT TAKES THE CHAIR

Dr. D.J. McLaren said that it was with peculiar pleasure that he was handing over the gavel to Juge Deschênes and that he felt proud that a noted jurist had agreed to serve as President of the Society.

Le nouveau Président: «Mes chers collègues : Fate has it that I am with you as President of the Society (*Alea jacta est!*) Depuis quelques années, la Société royale a exprimé l'ambition d'être reconnue comme l'Académie nationale du Canada. The Royal Society must be acknowledged and play the role of the National Academy of Canada. However, that requires more than words. We must work to improve the visibility of the Society and for this purpose we should move on three fronts: regional, national and international. Notre pays est divisé en cinq régions et dans chacune on doit faire des efforts pour améliorer les relations entre nos membres. We are three academies but the Fellows of Academy III in Ontario have little occasion of meeting Fellows of Academies I and II in Ontario. We should try to organize meetings between Fellows in each region. We should try to organize meetings of Fellows from the three Academies so that they get to know each other better and can play a role in establishing the policies of the Society. On a national basis, I would wish to see a Committee of Past Presidents which would meet once a year; the Past President now continues to act for two years after the appointment of the new President but after two

years they are seldom called upon. This reservoir of knowledge and experience is not being tapped.

A history of the Society should be published.

On a wider plane, the Society will continue its current programs of Global Change and Evaluation of Research in Canada. These are the most important activities of the Society at the national level.

Publications for a Society of our nature are crucial. We have structured our policy and now will ensure the easy idenfication of Society publications. We are lucky that Dr. James Leith and M. Jean-Denis Gendron have agreed to take over the publications.

It is important to obtain a fairer balance between French and English in the composition of the Society. I address myself to Academy III in particular where a fairer balance should be achieved; the French-speaking scientific community is not lacking in candidates. I beseech Academy III to have a second look into this matter.

Il nous faut aussi augmenter et améliorer la participation féminine. Nous sommes tous des produits de notre histoire et on se doit d'accroitre la participation des femmes dans la communauté intellectuelle. We must make an effort, as was done under the leadership of Dr. D.J. McLaren, to give attention to this situation.

Internationally, we must enhance the stature of the Society. Steps have been taken under Dr. Charles Smith's committee and I thank them for their efforts. We have established relationships with other national academies: Belgium, China, Finland, Ireland, Italy, New Zealand, U.S.A., U.S.S.R. We have established links with UNESCO, NATO and ICSU. It is now obvious that we have the need for a permanent officer in the area of international affairs and this will have to be established. Co-Foreign Secretaries have been appointed: Dr. P. LeBlond of U.B.C. and M. J. Légaré of the Université de Montréal. We look forward to further developments. This is important if we want to see the Society entitled to claim the title of National Academy. All of this means money of course.

Notre bilan actif de 1,7 million de revenus et nos dépenses de 1,2 million sont à un niveau respectable mais nous avons besoin de plus. We have called upon the Fellows to supplement the contributions to the Development Fund and over $300,000 has been pledged; this is an extremely important tool to be used when we approach other sources of funding. Our approach to the government was predicated upon our being able to get provincial funding and private sector funds. We have seen the highest authorities in Québec and Ontario, but you will understand that our timing is not appropriate. Last week I was reassured by the Gouvernement du Québec to expect an answer within the next few days.

Once responses are obtained from Ontario and Québec, we will seek funds from the Prairie and Atlantic provinces.

The Society has hired the services of the fund-raising firm of Gordon L. Goldie Co. Ltd. which is presently carrying out interviews. The Fundraising Committee will hold a meeting in Ottawa on 12 July 1990 and on the basis of Goldie's final report will plan a fund-raising campaign. We feel that such a campaign cannot succeed without the help of Fellows on a regional basis and with national guidance. It is important that we obtain the cooperation of Fellows through their contacts in the private sector.

Je ne veux pas allonger mes remarques, mais je serais ingrat si je ne faisais pas une proposition de félicitations et de bons voeux à l'égard du Président-sortant, Digby McLaren. His past career was a guarantee of the future and he has drawn a picture of a President difficult to imitate. I call on you to show your appreciation and express your good wishes to Dr. McLaren.»

NEXT ANNUAL MEETING/PROCHAINE ASSEMBLÉE ANNUELLE

The next Annual Meeting will be held from 3 to 7 June 1991 at Queen's University, Kingston, Ontario.

AUTRES POINTS/OTHER BUSINESS

The Chair of the Program Committee, Dr. R. Craig Brown, reported that a preliminary meeting had been held yesterday to begin planning for the meetings at Queen's University in 1991. No fixed plans were proposed at that time. A report will be presented to the September meeting of the Council Society.

MOTION *by M. Guy Sylvestre, seconded by M. J.-P. Vinay that a vote of thanks be extended to the University of Victoria for its excellent accommodation.* **CARRIED**

ADJOURNMENT/LEVÉE DE L'ASSEMBLÉE

MOTION *by M. Gilles Paquet, seconded by Dr. R. Sheinin, that the Annual Business Meeting be adjourned at 11:50.* **CARRIED**

Presentation of Awards
Présentation des distinctions

THOMAS W. EADIE MEDAL

Dr. F. Peter Ottensmeyer

Dr. Ottensmeyer's pioneering developments in both dark field and energy selected electron microscopy and their applications to a variety of problems in physics, chemistry and biology have kept Canada in the forefront of research in electron microscopy.

The combination of imagination with experimental and theoretical skills led to the development of two major conceptual advances in the use of the electron microscope for study of structure and function in biological systems.

The first involves exploitation of the concept of dark field electron microscopy in which only those electrons scattered by the object are actually imaged, greatly increasing the contrast of the specimen without the need to employ heavy metal stains. Dr. Ottensmeyer and his associates have developed computerized procedures for the automatic search and selection of molecular images from electron micrographs, thus removing any elements of subjectivity.

The second alleviates the effects of chromatic abberation, through Dr. Ottensmeyer's design and development of an imaging electron energy filter, which also has the more powerful advantage of allowing for specific visualization. In effect, it removes much of the clutter of an image and permits the spatial localization of various atoms within biological structures to a resolution of a few angstroms.

More recently, Dr. Ottensmeyer has collaborated in the development of a commercial energy-selecting electron microscope, currently marketed by Zeiss Corporation. Through his work, Dr. Ottensmeyer has provided a research tool of immense power and versatility.

Dr. Ottensmeyer was born in Germany in 1939 and earned his B.A.Sc.(1962), M.A.(1963) and Ph.D.(1967) at the University of Toronto. He is active in numerous professional affiliations, including the Canadian Federation of Biological Sciences, the Microscopical Society of Canada, the Biophysical Society of Canada and the National Cancer Institute of

Canada. He has published more than 100 scholarly addresses at universities and conferences across Canada, western Europe, the USA and Japan.

THE FLAVELLE MEDAL

Dr. Peter W. Hochachka, F.R.S.C.

Dr. Hochachka is described as the most innovative and creative biological scientist of his generation. His imagination and determination has led to the development of new lines of research concerned with the way animals survive extreme environmental conditions. Recognized nationally and internationally as a pathfinder in adaptational biochemistry, he is continually sought after at scientific congresses.

As one of the first investigators to apply modern biochemical approaches to questions of environmental adaptation, Dr. Hochachka's early work revealed many of the important types of adaptation associated with variations in temperature, hydrostatic pressure and oxygen availability. Lately, he has made his primary mark doing whole organism physiology.

Dr. Hochachka's scientific reputation is founded on his strengths in experimental work and in developing new and novel theories about a wide range of biological phenomena. His knowledge of adaptation to hypoxia, for example, has had an impact on attitudes to human fetal and neonatal medicine.

Dr. Hochachka was born in Therien, Alberta in 1937. He studied at the University of Alberta (B.Sc. [Hons.], 1959), Dalhousie University (M.Sc., 1961) and Duke University (Ph.D., 1964). In 1966, he joined the University of British Columbia where he is currently Professor of Zoology. His lengthy professional service record as visiting investigator and visiting professor includes symposia and universities in Australia, England, Peru, Czechoslovakia, Italy, the USA and Canada. Among his prolific scholarly output (including five books and more than 150 papers) he has written *Metabolic Arrest and the Control of Biological Time* in which he proposes interesting and provocative hypotheses to explain how some animals can "turn off" their metabolisms in reponse to environmental demands.

JASON A. HANNAH MEDAL

Dr. Anthony A. Travill

Dr. Anthony Travill is the author of *Medicine at Queen's 1854-1920: A Peculiarly Happy Relationship.*

Dr. Travill was born in born in England in 1925. He served four years with the R.A.F. and one year with the British Civil Service before studying medicine in 1948 at the University of London. He earned his MBBS, MRCS and LRCP (1954) and, after two years in family practice, came to Canada in 1957. In 1964, Dr. Travill joined Queen's University, where he is currently Professor of Anatomy. His lengthy academic service includes membership on the Admissions Committee, Senate Committee on Appointment Promotions, Tenure, Leave (as Chairman), Chancellor's and Principal's Installation Committees and Kingston General Hospital Archives Committee. As well, he is a member of many learned societies such as the Canadian and American Association of Anatomy, the British Association of Clinical Anatomists, the Canadian Society for the History of Medicine, and the Humanities Association of Canada. Dr. Travill has published more than 70 papers.

THE McLAUGHLIN MEDAL

Dr. Tak Wah Mak, F.R.S.C.

Dr. Mak is widely recognized as a leader in the field of molecular immunology. He earned international recognition for his success in isolating a molecular clone for the antigen receptor on T-lymphocytes. This discovery solved an enigma that had puzzled immunologists for 20 years and stimulated an understanding of how the immune system rejects foreign cells, including those infected with viruses or transformed into malignancy.

The molecular cloning of the gene responsible for the beta chain of the specific antigen receptor on T-lymphocytes is a milestone in immunology. The findings have clinical significance in the elucidation of the nature of hemopoietic malignancies in general and of T-lymphocytes in particular. Dr. Mak's work is important beyond the field of cancer; it has implications for autoimmunity and AIDS.

Dr. Mak's early studies were on RNA tumor viruses, specifically the Friend Leukemia Virus. In 1984, the isolation and cloning of a gene specifying the amino acid sequence of the human T-lymphocyte receptor was a finding that began the solution of the problem of T-cell antigen recognition.

Dr. Mak was born in 1946 and earned his B.Sc. (1967) and M.Sc. (1968) at the University of Wisconsin and His Ph.D. (1971) at the University of Alberta. He has been a member of the scientific staff at the Ontario Cancer Institute in Toronto since 1974. His awards include the E.W.R. Steacie Award, the Ayerst Award, the Stacie Prize and the Gairdner International Award. He has published more than 140 papers and also performs editorial duties for publications such as *Scandinavian Journal of Immunology*, *Biosciences Report* and *The International Journal of Immunology* and acts as reviewer for *Nature*, *New England Journal of Medicine* and *Journal of Experimental Medicine*, among others.

RUTHERFORD MEMORIAL MEDAL — CHEMISTRY

Dr. Michael D. Fryzuk

Dr. Fryzuk is considered an exceptional young inorganic chemist who has attained national and international recognition for excellence. The productive and innovative work of his research program centres on the design and synthesis of novel transition metal complexes. Dr. Fryzuk pioneered the concept of a hybrid ligand with a schizophrenic head and tail which, in combination with a transition metal cation, led to his discovery of a new family of compounds with unusual and interesting chemical properties.

With these new ligand systems, Dr. Fryzuk prepared the first stable amide complexes of rhodium, iridium and palladium, and the first phosphine complexes of ytterbium, zirconium and hafnium — combinations which were not previously possible. Recently, useful catalytic properties were found in these compounds which could lead to commercially important spin-offs. For this research, Dr. Fryzuk received a Sloan Fellowship in 1984.

Among his numerous publications, Dr. Fryzuk has produced an impressive number of landmark papers. And his career is described as showing every sign of being even more outstanding in the years to come.

Dr. Fryzuk was born in Sarnia, Ontario, in 1952 and earned his B.Sc. (1974) and Ph.D. (1978) at the University of Toronto. He is

currently Associate Professor of Chemistry at the University of British Columbia, which he joined in 1979. He has authored more than 50 papers and has spoken at universities across the US and western Europe. He was awarded the Killam Prize in 1989.

RUTHERFORD MEMORIAL MEDAL — PHYSICS

Dr. Scott Tremaine

Dr. Tremaine is recognized for his outstanding contributions to the field to astrophysics, particularly his spectacular success in predicting the properties of planetary ring dynamics and the extraplanetary objects that control them. He focused on the application of classical dynamics to astrophysics, a topic so central to astrophysics that his research spanned a broad variety of systems and scales, ranging from the microscopic equilibrium of planetary rings to cosmology and galaxy formation.

The record of this achievements in planetary ring dynamics alone is a fascinating catalogue of highly imaginative predictions, subsequently substantiated by observation.

Dr. Tremaine's research on comets, their orbits and fluxes has led to a new understanding of the forces that control their behaviour. Such understanding is extremely important for the interpretation of the geological record of cratering events and possible environmental disasters, such as the extinction of the dinosaurs, that could have resulted from comet impacts.

Dr. Tremaine also investigated the possibility that massive neutrinos could provide the dark mass in galaxies. This work still provides one of the solid arguments against massive neutrinos as the dark matter; the findings strongly suggest that the dimensions of the halo and the total mass of the Galaxy are much less than generally supposed.

Dr. Tremaine's work on dark matter and galactic halos has major implications for cosmology and the curvature of the Universe, whose importance in modern physics can hardly be overemphasized. His observations on the extreme difficulty of making curvature measurements based on the redshift-magnitude test have, as a result, caused cosmologists to redirect their efforts.

Dr. Tremaine was born in Toronto in 1950 and earned his B.Sc. (1971) at McMaster University and his M.A. (1973) and Ph.D. (1975) at Princeton University. Before joining the University of Toronto in 1985 as Professor of Physics, Dr. Tremaine was with the Department of

Physics at the Massachusetts Institute of Technology. His awards include the Alfred P. Sloan Research Fellow and the E.W.R. Steacie Memorial Fellowship. He has published more than 70 papers and co-authored, with J. Binney, *Galactic Dynamics*.

THE J.B. TYRRELL HISTORICAL MEDAL

MM. Hubert Charbonneau, m.s.r.c., et Jacques Légaré, m.s.r.c.

Les professeurs Charbonneau et Légaré sont les pionniers, au Québec et au Canada, de la démographie historique utilisant comme base de données l'ensemble de tous les actes d'État civil saisis sur ordinateur de façon à reconstituer automatiquement toutes les familles de la Nouvelle-France, des débuts du XVII[e] siècle à 1765. Inutile de préciser ici que les deux ont inventé de nouvelles méthodes de couplage automatique des données démographiques, notamment des noms de personne, permettant à cette innovation de se répandre à travers le monde. Leur impact a été certain en Europe, en France notamment, et en Amérique.

Les professeurs Charbonneau et Légaré ont tous deux brillé sur la scène nationale et internationale, en donnant des communications et des conférences sur pratiquement tous les continents du monde, de Paris, Londres et Madrid à Sydney, Tokyo, et Manille, sans parler de divers pays d'Afrique, de l'Amérique du Nord et de l'Amérique latine. Tous deux se sont impliqués non seulement dans la vie de leur université, dans un grand nombre de sociétés savantes où ils ont occupé des fonctions importantes, dans divers comités de revues nationales et internationales, mais ils se sont occupés aussi de questions contemporaines au sein de commissions ou conseils privés et publics en vue d'améliorer la qualité de vie de leur milieu.

Le professeur Charbonneau est né à Montréal en 1936 et s'est mérité une maîtrise en géographie (1958) de l'Université de Montréal, un diplôme (1960) et un doctorat (1969) de l'Université de Paris. Le professeur Charbonneau est l'auteur de quatre livres, et co-auteur ou directeur de six autres volumes. Il est aussi co-directeur (avec Légaré) de la fameuse et populaire série en 45 volumes du *Répertoire* de l'Etat civil ancien au Québec, série absolument indispensable pour quiconque veut faire de la généalogie, de l'histoire des familles et des études de cas pour la période de la Nouvelle-France. M. Charbonneau est professeur au Département de démographie, Université de Montréal, depuis 1965.

Le professeur Légaré est né à Montréal en 1938 et a reçu un B.Sc. (1969) de l'Université de Montréal, un diplôme (1963) et un doctorat (1969) de l'Université de Paris. Le professeur Légaré a également publié sept ouvrages, la plupart en collaboration. Il a produit 56 articles publiés dans les revues canadiennes et étrangères. Il est professeur au Département de démographie à l'Université de Montréal depuis 1965.

BANCROFT AWARD

Dr. Steven D. Scott, F.R.S.C.

Dr. Scott has made major contributions to research in earth science. His research has centred on an endeavour to understand hydrothermal systems and massive sulphide deposits. He has examined the tectonics of the modern seafloor to assess their relationship to ancient ores on land (work involving undersea expeditions) and has also worked on the phase equilibria and reaction kinetics of sulphide systems.

In addition to an outstanding research career, Dr. Scott has devoted enormous energy and enthusiasm to publicizing and popularizing earth sciences. He has delivered more than 300 lectures to his peers, and has made himself available to journalists to reach the public at large. Dr. Scott also served as technical consultant and subject-of-interest to PBS's Emmy-award winning "Planet Earth" series in 1985.

Dr. Scott was born in Fort Frances, Ontario in 1941 and earned his B.Sc. (1963) and M.Sc. (1964) at the University of Western Ontario, and his Ph.D. (1968) at Pennsylvania State University. He joined the University of Toronto in 1969, where he is currently Chair of the Division of Geological and Mineral Engineering. He has held several Distinguished Lectureships, including the Esso Distinguished Lecturer (Earth Sciences Foundation, Australia) and the Lindsley Distinguished Lecturer (Society of Economic Geologists); and has spoken extensively in Australia, the USA, Japan, Sweden and Canada. Since 1982, Dr. Scott has participated in more than 20 oceanographic expeditions including Tuzo Wilson Seamounts, Juan de Fuca Ridge, Explorer Ridge, and Western Woodlark Basin.

Reports of Academies
Rapports des Académies

Académie des lettres et des sciences humaines

Procès-verbal de l'assemblée annuelle
University of Victoria, Colombie-Britannique
le 6 juin 1990

Présents: Le président, M. Gilles Paquet, le vice-président, M. Clément Moisan, Mesdames Maryvonne Kenderji et Jeanne Demers, MM. Pierre Camu, Roger Comtois, Jules Deschênes, Jean-Denis Gendron, Pierre Hurtubise, Hubert Poirier et Jean-Paul Vinay.

Ordre du jour (tel qu'amendé)

1. Adoption de l'ordre du jour;
2. Adoption du procès-verbal de l'Assemblée annuelle tenue à l'Université Laval en juin 1989;
3. Les prochains colloques de l'Académie;
4. Les publications de la Société;
5. La révision des statuts;
6. La revue sur l'environnement;
7. L'évaluation de la recherche;
8. Rapport de la secrétaire;
9. Divers.

En l'absence de M. Paquet retenu ailleurs en début de réunion, M. Moisan préside. Avant d'ouvrir la séance, il donne la parole à M. Vinay qui avait souhaité faire part de ses réactions face à certaines prises de position de la Société. (voir le texte en annexe)

1. L'ordre du jour est adopté à l'unanimité.
2. Le procès-verbal de l'Assemblée annuelle 1989 est adopté à l'unanimité.
3. Clément Moisan annonce un projet de colloque qui aura lieu à l'Université Laval, au début de mars 1991 et qui posera la question du rôle des «humanités» aujourd'hui, en relation surtout avec les sciences humaines. (cf. Annexe A). Sa tenue est d'autant plus pertinente que le Conseil des Universités a entrepris une étude à ce

sujet. Il s'agit d'une collaboration entre l'Académie I et la Chaire pour le développement de la recherche sur la culture d'expression française en Amérique du Nord (CEFAN) dont Jean Hamelin est le directeur. Une subvention sera demandée à la Société mais aussi à d'autres organismes subventionnaires comme le CRSH.

Pour ce qui est du colloque de Kingston, Clément Moisan présente l'hypothèse d'un sujet qui toucherait les jeunes. Le titre pourrait être «Nos jeunes, quel avenir?» Le moment paraît bien choisi pour aborder cette question qui ne peut laisser personne indifférent. De plus, il y a un lien avec la problématique du colloque sur les «Humanités» et, qui sait, peut-être y aurait-il une possiblilité de travailler conjointement avec les collègues de l'Academy II?

Le sujet du colloque prévu lors de la réunion à l'Ile-du-Prince-Edouard n'est pas encore arrêté mais il pourrait constituer une suite de celui de mars à Québec et être tenu avec les collègues de l'Academy II.

À l'instigation du juge Deschênes, l'Académie songe à s'impliquer dans une activité à l'occasion des fêtes de Montréal en 1992. Le Conseil de l'Académie attend des suggestions.

4. M. Moisan annonce que Jean-Denis Gendron a accepté d'être présenté au poste de directeur adjoint des publications de la Société. Il s'agit d'un poste fort important, de préciser M. Camu qui suggère comme premier geste, la préparation d'un protocole.

   La discussion s'engage ensuite sur la qualité du français des publications. On signale même le cas extrême d'un article qui a dû échapper à toute révision puisqu'il contenait plus de 200 fautes.

5. M. Camu enchaîne en expliquant qu'il avait souhaité avancer la date de révision des statuts à cause bien entendu des nombreux changements survenus à la Société mais aussi beaucoup pour tenir compte des commentaires concernant la traduction souvent fautive. Il en profite pour signaler l'aide que lui ont apporté MM. Guy Beaulne et Roger Comtois et dire sa satisfaction devant le nombre important de réactions (plus d'une centaine) reçues suite au projet de modification.

6. M. Deschênes fait état de la situation pour ce qui est de la revue sur l'environnement. Il en annonce le titre provisoire — *Nuna/Eco-management* qui a l'avantage d'être bilingue et de faire appel à la

langue inuktitut — et dit que le comité responsable dont il fait partie a choisi un rédacteur en chef et qu'il se prépare maintenant à nommer un comité de rédaction.

Il s'agira, précise-t-il à la suite de questions des membres, d'une société à but non lucratif placée sous le contrôle de la Société royale mais indépendante financièrement. À ce jour cette société peut compter sur une subvention (étalée sur trois années) de trois millions dont le tiers provient du Québec et les deux tiers d'Ottawa. Le siège de la revue sera à Ottawa, dans les locaux de la Société. La revue sera moitié en français et moitié en anglais et comportera une centaine de pages. Le tirage de lancement prévu est de 20 000 exemplaires et la périodicité, de quatre numéros par année.

7. Gilles Paquet fait le point sur la question de l'évaluation de la recherche par la Société. Il rappelle ses inquiétudes liées d'une part au fait qu'à ses débuts du moins, le comité a complètement occulté les lettres et les sciences humaines au profit des disciplines scientifiques, d'autre part au manque d'informations transmises au Conseil de la Société au sujet du budget. À son avis, ces inquiétudes sont encore fondées, aussi suit-il le dossier de très près.

8. Le rapport de la secrétaire rappelle que l'Académie a tenu quatre séances de présentation au cours de l'année. En octobre, au Collège militaire de Saint-Jean (MM. Roch Carrier, Laurent Santerre, François-Marc Gagnon), à l'UQAM, en janvier, (Mme Céline St-Pierre, MM. Jacques Hétu et Laurent Mailhot), à l'Université de Montréal, en mars, (MM. Bernard Beugnot, Robert Lacroix et Claude Lévesque), en avril aux HÉC, (Mme Madeleine Blanchet, MM. Alain Haurie et Pierre Léon). À ces séances, s'est ajoutée une cérémonie spéciale en l'honneur de Mme Ludmilla Chiriaeff qui, malade, n'avait pas encore pu signer son engagement envers la Société. La secrétaire signale aussi la mort de M. Jean Darbelnet et celle, très récente, de Mme Cécile Chabot.

9. Rien n'étant inscrit à l'item divers, la séance est levée.

Jeanne Demers, secrétaire
Académie des lettres
et des sciences humaines

ANNEXE A : PROJET DE COLLOQUE

Titre: *Humanités et sciences humaines aujourd'hui*

Lieu: Université Laval (Québec)

Date: Semaine du 4 au 8 mars 1991

Patronage: Société royale du Canada et Chaire d'étude sur la culture d'expression française en Amérique du Nord (CEFAN) de l'Université Laval

Organisateurs: Mme Jeanne Demers, secrétaire et M. Clément Moisan vice-président de l'Académie des lettres et sciences humaines de la Société royale du Canada.

MM. Jean Hamelin, titulaire de la Chaire CEFAN et André Coté, membre du Conseil de la Chaire CEFAN

Coordonnateur: M. Clément Moisan, Université Laval

Problématique: Les humanités, qu'on appelait il n'y a pas si longtemps encore classiques, semblent avoir plus ou moins disparu des discours actuels au profit des sciences humaines. Ce changement de vocabulaire est aussi un changement de concept et de conception du travail intellectuel et disciplinaire, désormais appelé «scientifique», mais aussi de la formation de l'esprit, de la culture et de la civilisation, souvent qualifiée d'humanisme. Le présent colloque a pour but de retracer les notions et les réalités en cause, de définir leur état présent et de voir s'il y a antinomie ou complémentarité entre les humanités et les sciences humaines, telles qu'elles existent dans notre monde contemporain. On ne s'interdira pas une projection vers l'avenir proche, voire plus lointain.

Dans une étape ultérieure, l'Académie I serait intéressée à un autre colloque, conjointement avec l'Academy II, où seraient comparées et confrontées

ses réflexions avec celles des membres de l'Academy II et de leurs collègues.

ANNEXE B : Intervention de M. Jean-Paul Vinay, Séance du 5 juin 1990

Je remercie le Président de l'Académie des lettres et des sciences humaines de me permettre une brève intervention sur un sujet qui me parait particulièrement brûlant. Je fais allusion à deux documents de la Société qui, bien que provenant de deux organismes différents, se rejoignent dans leur finalité.

Le premier, en date de juin 1986, s'intitule *Statement on "scientific" Creationism and Evolution*; il présente la théorie de l'évolution comme seule explication de la diversité des formes de vie sur terre. Il conclut : «Creationism should be excluded from the science curriculum in school». Une note manuscrite en bas de page indique que cette déclaration a reçu l'approbation et le soutien du Conseil des sciences du Canada.

Le second, en date de mars 1990, relance la question sous un autre angle, ce qui ne manque pas de piquant. En 1991, en effet, doit avoir lieu un Colloque international des Académies, qui devra étudier la position inverse, à savoir comment la religion et les dogmes posent des entraves à la recherche.

Je ne veux pas entrer dans un débat théologique qui serait déplacé dans cette assemblée. Je rappelerai seulement que l'objet de la Société royale, selon le texte des *Délibérations* (1989) est «de contribuer au développement du savoir et de la recherche dans les Arts et les Sciences», et non de se faire l'apôtre de l'athéisme. Or, un de nos collègues de McGill University, le professeur Mario Bunge — qui est peut-être à l'origine de ce débat — dans un article violemment anti-religieux, précise en le regrettant que plus de la moitié de ses étudiants croient en Dieu et en l'immortalité de l'âme, ce qui les rend évidemment incapables de faire preuve d'esprit scientifique. *Well, good for them!*

Je n'ai pas l'intention de reprendre un à un tous les arguments que le professeur Bunge évoque pour éliminer la religion, «the greatest obstacle to the adoption of the scientific attitude». Le Père Bruckberger l'a fait mieux que je ne saurais le faire. Mais d'ailleurs, la question n'est pas là. Je m'insurge seulement contre une telle attitude arrogante, qui refuse toute place à l'enseignement «créationniste», un peu comme si — toutes proportions gardées — le grand nombre d'accidents mortels sur les routes justifiait la suppression des automobiles. Il est difficile d'admettre

qu'un collègue, dans une publication officielle de la Société, regrette que l'enseignement de la science «could not wean [the students] from traditional creeds». Comme le dit R.L. Bruckberger, «l'ostracisme systématique d'une hypothèse qu'elle soit [...] me parait l'attitude la plus anti-scientifique qu'on puisse imaginer».

Et pourtant, au sein de cette même Société, on relève des signes d'une attitude beaucoup plus éclairée. Par exemple, le recueil sur l'*Origine de l'univers*, dirigé par John M. Robson (1987), s'il ne va pas assez loin pour mon goût personnel, et même si les dés sont pipés au départ par le choix des participants à ce collectif, ne ferme pas la porte à la vision métaphysique : «It is hard to imagine a scientist who does not see order in the universe, a harmony of the various forces that permit the continued existence of the world, and a pattern involving regularity of phenomena and a generality of laws [...]; Einstein himself calls this a 'cosmic religious feeling'» (p.471).

En terminant, puis-je me permettre de rappeler à nos collègues que «si le magistère [catholique] refuse de considérer la thèse évolutionniste comme absolument certaine et rigoureusement prouvée, il ne défend pas aux savants de considérer dans le domaine de leur compétence l'évolutionnisme comme pratiquement certain». (Karl Rahner)

Référence

A. Documents de la Société royale du Canada

1. *Statement on 'scientific' Creationism and Evolution.* Academy of Science, June 30, 1986.

   "Because their outlook and their methods are so non-scientific, the conclusions of creationists are also incompatible with scientific thought ... Creationism should be excluded from the science curriculum".

2. *Entraves à la liberté scientifique.* Société royale du Canada, Comité sur la liberté scientifique, mars 1990.

   Cf. page 3 : «Entraves religieuses et ethniques : dogmes religieux et entraves à la recherche».

3. *Délibérations.* Société royale du Canada, 5e Série, Tome IV (1989).

B. Documents cités:

Bruckberger, RP. R.L., «L'Hypothèse-Dieu», *La Pensée catholique*, Paris, n° 25, Mars-avril 1990 : 29-47.
«De toutes les hypothèses scientifiques, l'hypothèse-Dieu est la seule et unique à laquelle on refuse le régime commun de l'hypothèse... L'ostracisme systématique d'une hypothèse quelle qu'elle soit... me paraît l'attitude la plus anti-scientifique qu'on puisse imaginer». (p.33)

Robson, J.M., *Origin and Evolution of the Universe: Evidence for Design?* Royal Society of Canada & Canadian Institute for Advanced Research, McGill-Queen's University Press, 1987.

Denton, Michael, *Evolution, une théorie en crise*. Paris, Londreys, 1988.

Rahner, Karl & Vorgrimmer, Herbert, *Petit Dictionnaire de théologie catholique*. (Traduit de l'allemand) Paris, Le Seuil, 1970.

Academy of Humanities and Social Sciences
Annual General Meeting
University of Victoria
5 June 1990

The meeting was called to order at 08:30 Present: Jean A. Laponce (President), R. Craig Brown (Vice-President), A. Kirk Grayson (Honorary Secretary), Charles Bourne, David Braybrooke, John F. Graham, L.C. Green, N.E. Griffiths, Francess G. Halpenny, Karol J. Krótki, James Leith, Juliet McMaster, Rowland McMaster, Anthony H. Richmond, Anthony W. Riley, Gideon Rosenbluth, A.D. Scott, S.F. Wise, Morris Zaslow

1. Approval of Minutes

The minutes of the annual general meeting at Université Laval on 6 June 1989 were approved.

2. Business arising from the minutes

None

3. Reports

a) President

The president reported that the Society was undergoing a major change in direction with the launching of new endeavours funded by substantial grants from the government. In particular he mentioned the Evaluation of Research Program, the Global Change Program, and the Environmental Journal. He emphasized that it was important to be alert in this transition to ensure that this Academy was not ignored.

The president reported that the Society had protested to the Social Sciences and Humanities Research Council of Canada regarding its intention to cut severely the funding of major editorial projects. The protest was partly successful but the *Dictionary of Canadian Biography* was severely cut.

The president further noted that the Academy continues to encourage academic endeavours and to try and reduce administrative costs. In particular he drew attention to the fact that the Academy now had its own budget and therefore there was funding available to help support symposia.

In the discussion of the President's Report the idea was proposed that for regional meetings, members of Academies II and III could co-operate in a symposium and both Academies should be encouraged to contribute towards the cost.

b) Vice-President

The Vice-President reported on the results of the nominations of New Fellows. He noted that twenty New Fellows per year are being elected.

c) Secretary

The following deaths have been reported to the secretary since the last meeting in June of 1989: R. Hubbard (Honorary Historian, Government House), George Ignatieff (Chancellor, Toronto),

Malcolm MacGregor (Classics, British Columbia), Erich von Richtofen (Spanish & Portuguese, Toronto), Donald Smiley (Political Science, York), Charles Stacey (History, Toronto), Norman Ward (Political Science, Saskatchewan), Christian Bay (Political Science, Toronto).

He reported on the action of the Committee for Advancement of Women in Scholarship in sending to him *curricula vitae* of women scholars to consider for nomination to the Royal Society. Attached is a breakdown of the action which has been taken (Attachment A). He stressed that these *curricula vitae* were being handled with the greatest regard for confidentiality.

He further reported on expenditures from the Academy's budget, details of which were circulated (Attachment B). In particular he noted that there was still a significant unspent balance. It was moved (Craig Brown) and seconded (Sydney Wise) that this report be accepted. Carried.

d) Other Reports

Juliet McMaster reported on the Symposium *Imag(in)ing Women* at the University of Alberta in April. The symposium was a success with 150 in attendance and the presentation of 28 papers, 17 of which would be published.

4. Budget Projection for 1990-91

It was moved (Kirk Grayson) and seconded (James Leith) that the same kind of budget projection be adopted for the forthcoming year (Attachment C). Carried.

5. Election of New Members to Council and Committees

a) It was moved (Karol Krótki) and seconded (Sydney Wise) that henceforth the terms of all Council members be for three years. Carried.

b) It was moved (Karol Krótki) and seconded (David Braybrooke) that the terms of the following be extended to end in 1991: Juliet McMaster, Mario Valdes, and Sydney Wise. Carried.

c) It was moved (Karol Krótki) and seconded (Kirk Grayson) that the following be elected to Council for 1990-93: Trevor Lloyd (Geography, McGill) and Ronald Wonnacott (Economics, Western). Carried.

d) Committees: It was moved (Karol Krótki) and seconded (Craig Brown) that the list of nominations to committees as it appears in Attachment D be approved. Carried.

6. Procedure for Nomination of New Fellows

The chair of the New Fellows Committee, Craig Brown reported on a number of changes in the procedure for nominating New Fellows. In future the dossiers and score sheets would be sent out to members of the committee in early December so that they can read and score in advance. The dossier and score sheets will be returned in advance of the January meeting so that in the meeting, discussion may concentrate on the marginal cases.

Since the Society now asks for the names of two referees on the nomination form, if the need is felt to consult these referees in marginal cases, consideration for nomination will necessarily be postponed one year.

Many other suggestions were made to make the nomination procedure more efficient and economical. These will be pursued and used if possible.

7. Academy Funding for Symposia

The president reminded members that the Academy had some funds to help support symposia.

The meeting adjourned at 10 a.m.

A. Kirk Grayson, Honorary Secretary
Academy of Humanities and
Social Sciences

ATTACHMENT A: Committee on Advancement of Women in Scholarship

REPORT

A total of 50 *curriculum vitae* were sent out, with the greatest regard for confidentiality, for appraisal. The following is the statistical breakdown of action taken as a result of those appraisals.

16	No action should be taken
6	Yes, should be nominated and now looking for nominators
3	Yes, should be nominated and have nominators
7	A nomination now would be premature. Consider again in a few years.
18	Still looking for appraisers
50	Total

ATTACHMENT B: Expenditures from the Academy's Budget: June 1, 1989 to March 31, 1990

Date	Description		Debit
Crédit			
June 1989	Allocation		16,550.00
June 1989	Laval Meetings	1,415.37	
November 1989	Secretary's Office	2,800.00	
November 1989	President's Office	297.42	
January 1990	Toronto Meetings	4,726.63	
February 1990	Secretary's Office	1,200.00	
March 1990	President's Office	121.89	
March 1990	Vancouver Symposium	51.00	
March 1990	Edmonton Symposium	2,000.00	
	Totals	12,612.31	16,550.00
	Credit Balance	3,937.69	

ATTACHMENT C: Budget Projection 1990-91

Secretary's Office	$ 4,000
Meetings of NF & Council, Exec.	$ 6,000
Queen's Meeting	$ 2,000
Regional Meeting	$ 2,000
Seed money for Symposium	$ 2,000
Miscellaneous	$ 500
TOTAL	$16,500

ATTACHMENT D: Committees

Jason A. Hannah Medal: Screening Committee

Chair (François Duchesneau I)	Chair (J. Michael Bliss)
Past Chair (R.B. Salter III)	Past Chair (François Duchesneau I)

Jason A. Hannah Medal: 1991 Committee

(François Duchesneau I) 1989-91 Chairing the 1990 committee	J. Michael Bliss 1990-92 Chairing the 1991 committee

Kenneth D. McRae 1989-91

Innis-Gérin Medal

No action required, all appointments valid beyond 1990

Lorne Pierce Medal

William H. New 1988-90	William H. New 1990-92

The J.B. Tyrrell Historical Medal

G. Ramsay Cook 1986-92	David A. Campbell 1990-94

The Konrad Adenauer Research Award

Sydney F. Wise 1989-94 resigned	Anthony W. Riley 1990-94

External Awards Committee

David E. Smith 1988-90	Francess G. Halpenny 1990-92

Symposium Committee

Chair, J.A. Leith 1987-90	Shirley C. Neuman 1990-93
Martin L. Friedland 1988-90	Anthony H. Birch 1990-92
Shirley C. Neuman 1989-91	

Freedom of Scholarship and Science Committee

H. Gordon Skilling 1987-90	H. Gordon Skilling 1990-93

Academy of Science / Académie des sciences
Minutes of the meeting of Council
Saturday, 2 June 1990, Victoria

Present: Drs. Bancroft (MPS), Barnes (Vice-President, ESS), Beveridge (LS), Carswell (MPS), Hardy (MPS), Haynes (ESS), Keen (ESS), Macklem (LS), McCulloch (President, LS), McCully (LS), Mysak (ESS), Scott (ESS), Vijh (ASE).

Guests: Drs. Brooks (UBC — Canadian Advisory Committee on the Scientific Use of the Space Station) and LeBlond (Chair — Committee to Review Canada's Relations with ICSU)

Dr. McCulloch opened Council and noted that this was the last time the Council would meet as sections and that as of Monday, 4 June 1990, the Committee on the Reoganization of the Academy of Science (CORAS) recommendations would be in effect.

Minutes: minutes of January 1990 were approved. No questions on the activities of the executive since the last meeting were raised.

President's Report: no response has been received from Dr. Perron with respect to the letter to NRC expressing the Academy's concern on its 5-year plan. The letter was circulated to all Fellows in the Academy.

- suggestion that a standing committee on science policy composed of the four Division Directors be formed to handle any future science issues. Council approved the motion (Drs. Mysak/Barnes) with Dr. Macklem as chair. The committee will meet at time of Council.
- the Canadian Institute of Academic Medicine cancelled its meeting planned for the same time frame in Victoria as the Society's Annual General Meeting (AGM).
- the Canadian Academy of Engineering (CAE) reported (Dr. McCulloch on behalf of Dr. Shemilt) that it will hold its annual meeting on 8 June in Montreal with Dr. Alan Bromley, Assistant to the President (USA) for Science and Technology, as the guest speaker.
- the CAE has co-operative programs with the RSC in the following: International Decade for National Disaster Reduction (IDNDR) and its sub-committee on post-earthquake cooperation with the Armenian Academy of Sciences, Joint Committee on Health and Safety, Public

Awareness of Science (PAS), and Committee on Parliamentarians, Scientists and Engineers (COPSE).

- CAE is willing to be involved in any activity in the evaluation of the concept of nuclear waste disposal and will participate or contribute if asked to the Evaluation of Research program.
- CAE also welcomes joint activities with the new division of Applied Science and Engineering.

Address by Dr. Brooks who represents Canadian scientific interests at international forums and provides advice on the Canadian scientific use of the space station:

- Canada has the right to 3% of space station resources including pressurized laboratory volume, attached payloads, small and rapid response payloads, crew time and up-mass.
- He was concerned that the upper echelons in the Canadian Space Agency are not scientists and that small science will not get represented in the decision-making process. He wants strong scientific input so he approached the Academy to ask its Fellows to respond to his survey of the Canadian scientific community regarding types of research that should be supported for potential performance on the space station.
- Council agreed to provide input and help, and appointed Dr. Vijh to act as liaison and report back to Council on a regular basis.

ACTION: Dr. Vijh to establish rapport with Dr. Brooks and assist in the identification of key scientific researchers. Dr. Vijh will report to Council on a regular basis.

Report on the elections of Academy Officers: Dr. McCulloch reported on behalf of Dr. Stewart. Elections were carried out and the ballots counted by two people. Thanks were extended to all those who stood for election. See attached for the Division Executives.

Report of the Nominating Committee: Dr. McCulloch reported on behalf of Dr. Stewart that the nominations for the new Academy executive are as follows:

President:	Dr. C.R. Barnes
Vice-President:	Dr. L. Shemilt
Vice-President:	no decision as yet
Secretary:	Dr. B. Kendrick

- Council discussed the second vice-president position and agreed that there should be francophone representation on the Executive. Discussion arose on whether or not allophones residing in Quebec could also be considered under this representation, as well as the requirements for regional representation.
- Discussion also arose on the method of choosing the Executive. Council expressed concern that there were no elections; Dr. McCulloch said this would be the last time the Executive would be selected in the old manner.
- Council approved the new Executive with the mandate to nominate a francophone for the position of second vice-president. (motion Drs. Macklem/Hardy)

Report on the Projects

Assessment of Research: Dr. Larkin was not present to provide an update of the program. Discussion arose concerning the management of the hearings held across Canada at various universities. Council felt that the program had ignored their wishes to be well informed on the program activities and that the program acted with a high degree of autonomy.

- concern was expressed that the program report will make major statements about funding and research to the government and the Academy as yet has had no input. Dr. McCulloch indicated that there will be an opportunity to comment on the draft report.

ACTION: Dr. McCulloch will ask Dr. Larkin for a written report on the program.

Canadian Global Change Program: Dr. Mysak presented an overview of the program and discussed some of the main components of the program (see attached). Dr. Anne Whyte has replaced Dr. F. Kenneth Hare as chair of the Board of Directors. Dr. Richard Peltier heads the Natural Sciences Research Committee and Dr. Rod Dobell is head of the Human Dimensions Research Committee.

- The first general assembly of the program bringing together all the players took place 18 April in Toronto and was chaired by Dr. Hare.
- The program has recently published its first newsletter entitled *Delta* which will be produced twice a year to provide information on the scientific programs and advertise meetings.

- Under the theme of global change the Society has recently published a book entitled ***Planet Under Stress/La Terre en péril***, which is available to all Fellows at a savings.
- discussion ensued on the program concerning the role of the Society within the program, the structure of the program and its relation to IGBP, program funding sources within the federal agencies, and the lack of information supplied to the Academy on the program. It was agreed that Council would ask the CGCP Board of Directors to report to Council at its council meetings. In addition the Society should ensure that a balanced view on global change and global warming be made available to the public.

ACTION: Dr. Barnes to request the Canadian Global Change program to report on their program to Council at its council meetings.

Electric and Magnetic Field Risk Assessment: Dr. Stewart was not present to up-date Council, but would report at the General Business Meeting on Monday, 4 June 1990.

Public Awareness of Science: Dr. Neale was not present to up-date the Council, however the draft plan for the program re-structuring was presented to Council for consideration and comment. Council will review the plan and discuss at the next Council meeting. Also to consider is a new chair for the program as Dr. Neale has indicated he intends to step down.

ACTION: Council to review the draft plans for the re-structuring of the public awareness program and propose a new chair for the program at the next Council meeting.

Tobacco, Nicotine, and Addiction: the Society report has been circulated to all Fellows and the program is now complete.

AIDS: the committee presented an overview of the Society report and recommendations to the Ad Hoc House of Commons Committee on AIDS in April. The committee is concerned over the delay in announcing a national plan of action on AIDS.

Report of the Committee to Review Canada's Relations with ICSU: Dr. LeBlond presented an overview of the report that was pre-circulated to Council in March. The report made the following recommendations:

(1) That the Royal Society of Canada, in keeping with its character as Canada's National Academy, affirm and deepen its interest in international scientific relations (more specifically with ICSU, its affiliates, and other non-governmental organizations) and discuss, in a broad consultation with all agencies and scientific relations, in particular the National Research Council, the possibility of assuming full responsibility for adhering to ICSU, its affiliates and other non-governmental scientific organizations.

(2) That in the pursuit of the first recommendation, the Royal Society initiate a fundamental review of the current efficacity and the possible future organization of the National Committee system of ICSU representation, seeking to enhance Canadian awareness and participation in international scientific activities.

- The report was sent to NRC and provoked a slightly negative reaction but may have opened the door for possible discussions and review of NRC's role.
- Council unanimously agreed with the report's recommendations and encouraged Dr. LeBlond in his new joint position as Co-Foreign Secretary for the Society to pursue the recommendations.

Implementation of CORAS Recommendations

Academy Nominating Committee: will consist of the four Members at Large and the Past President as chairman. Each Division to appoint a Member at Large.

ACTION: Each Division Executive to appoint a Member at Large to the Academy Nominating Committee with Dr. McCulloch as chair. The committee will present its members at the next Council meeting.

Council Fellowship Review Committee: Council could not agree on the selection of the committee and it was decided that the Academy

Nominating Committee should bring forth a slate to the September meeting.

ACTION: The Academy Nominating Committee (ANC) will bring forth a slate to Council in September. Dr. McCulloch as chair of the ANC will oversee the nominations.

- general discussion followed concerning CORAS procedures and specifically on the questions of nominations and the composition of the Council.
- for this year the Members at Large from each Division will serve on Council, with one Member at Large from a Division serving one year and the other two years in order to get a staggered process underway. The Member at Large serving in his or her second year on the Division Executive would sit on Council. Council accepted this procedure in principal and will ratify it at the September meeting.
- nominators should be notified that nominations should now include the names and addressed of three referees and that nominations already on file would be strengthened if they had referee names. Council agreed that all nominations will now be sent to the Academy Co-ordinator and will be due by 15 October. The Academy Co-ordinator will be responsible for ensuring all nominations are complete and will forward the nominations to the chairman of the Division Fellowship Review Committee (DFRC) by the first week of November.

ACTION: The Co-ordinator for the Academy to write all Fellows and outline the new procedures for nominations.

Other Business

Rawson Academy of Aquatic Science: the Society received a request from the Rawson Academy to undertake a review of the Report of The Alberta-Pacific Environmental Impact Assessment Review Board.

- Council was concerned with the political nature of the issue, and agreed it was a contentious matter.
- Council agreed to write the Rawson Academy with a copy to Premier Getty stating that the Academy is willing to undertake a review of the report if the government of Alberta is interested in contracting their services.

ACTION: Dr. McCulloch will take the Academy decision to the Society Council and ask the President of the Society to respond on behalf of the Academy.

UNESCO Advisory Committee on Natural Sciences: on 28 May the first meeting of the Canadian Commission for UNESCO's Natural Sciences Advisory Committee met in Ottawa to establish the committee and develop terms of reference.

- the Executive Committee of the Canadian Commission for UNESCO recommended that a committee be formed representing the four core UNESCO natural sciences programs (IGBP, IHP, IOC, MAB) as well as three other disciplines. This Advisory Committee would report to the Executive Committee and advise the Canadian Commission on its natural science activities, policies etc. The Society through the Academy of Science has been asked to be a representative on the Advisory Committee.
- Council agreed to nominate Dr. Haynes (accepted) to the Advisory Committee

Canadian Radiation Protection Council: the Academy has been asked by Dr. R. Jervais if it would be prepared to discuss their report. Council agreed and Dr. Hardy will review the document and prepare a report for Council in September.

Guest for the September Council meeting: several names were proposed, among them Dr Winegard, Minister of State (Science), the new President of the Science Council of Canada or NSERC (both still to be announced), and Dr. Stuart Smith.

ACTION: Dr. Barnes to approach the suggested guests and finalize.

Order of Proceedings for the Annual Meeting
Programme de l'Assemblée annuelle

ORDER OF PROCEEDINGS

Saturday, 2 June 1990

08:30-12:00	**Society**	International Affairs Committee
09:00-12:00	**Society**	Editorial and Publications Committee
09:30-12:00	**Académie I**	Exécutif
11:00-12:00	**Academy II**	Executive
09:30-12:00	**Academy III**	Executive
13:00-17:00	**Académie I**	Conseil
13:00-17:00	**Academy II**	Council
13:00 17:00	**Academy III**	Council
18:00-20:00	**Society**	Executive

Sunday, 3 June 1990

09:00-18:00	**Society**	**Registration and signing-in**
08:30-10:30	**Society**	**Committee on Symposia**
09:30-17:00	**Society**	**Council**
15:00-18:00	**Society**	**Seminar:**

WOMEN IN SCHOLARSHIP: ONE STEP FORWARD, TWO STEPS BACK?

Chair: Francess G. Halpenny, University of Toronto
Moderator: Lorna Marsden, Senator

Rose Sheinin, Vice-Rector Academic, Concordia University, "La suite du 6 décembre"

Ursula Franklin, University of Toronto
"The Sandbox and the Tools"

Louis Courville, École Polytechnique de Montréal
"J'étais là"

Monique Frize, University of New Brunswick
"Women in Engineering"

Kai Neilson, University of Calgary
"Harming the Women: The Backlash to Femininsm?"

Peta Tancred, McGill University
"Harassment and Backlash: Common Threads, Any Solution?"

Mary Jane Mossman, Osgoode Hall
"A Paradigm Shift in Canadian Law Schools?"

17:30	**Society**	**Open Supper**

18:00	**Buffet Supper**	New Fellows
19:30	**Society**	New Fellows Assemble
19:45	**Society**	Officers Assemble
20:00	**Society**	Induction Ceremony Address of Welcome: Dr. S.E. Scully, B.A., M.Litt., Ph.D. Vice-President Academic, University of Victoria Presentation of New Fellows
21:30	**Society**	Reception for New Fellows

Monday, 4 June 1990

08:00- 12:00	**Society**	Registration and signing-in
08:30- 09:30	**Society**	Program Committee
09:00- 12:00	**Academy II**	Symposium: **CANADA AND THE GROWING PRESENCE OF ASIA** Organizer: Mark W. Zacher, University of British Columbia Panel 1: CANADA AND THE PACIFIC RIM ECONOMY Chair: Mark W. Zacher, University of British Columbia Rod Dobell, Institute for Research on Public Policy, "The Patterns of Trade and Investment Ties among Pacific Rim States: Canada in the Regional Setting" John Helliwell, University of British Columbia, "The Relative Economic Performance of Pacific Rim States"

Panel 2: CANADIAN FOREIGN POLICIES IN ASIA

Chair: Ralph Hueneman, University of Victoria

Paul Evans and Bernard Frolic, York University, "Canadian Foreign Policy toward China"

Gérard Hervouet, Laval University, "Canadian Foreign Policy toward Southeast Asia"

Panel 3: CANADIAN TRADE RELATIONS WITH ASIA

Chair: Gérard Hervouet, Université Laval

Keith Hay, Carleton University, "Japanese-Canadian Trade Relations"

Ralph Hueneman, University of Victoria, "Chinese-Canadian Trade Relations"

12:15-14:00 Society Luncheon
Address by the President, Dr. Digby J. McLaren: "Retrospective and Prospect"

14:00-17:00 Academy II Symposium: (cont'd)

Panel 4: THE IMPACT OF HONG KONG

Chair: Rod Dobell, Institute for Research on Public Policy

Maurice Copithorne, University of British Columbia, "Hong Kong's Impact on Canada: A View from Hong Kong"

Michael Goldberg, University of British Columbia, "The Impact of Hong Kong Investment in Canada: The British Columbia Experience"

Panel 5: ASIAN INFLUENCES ON CANADIAN ART

Chair: Maurice Copithorne, University of British Columbia

James Caswell and Kian Kwok, University of British Columbia, "Some Influences of Chinese Art on Canadian Art"

Barry Till, Art Gallery of Greater Victoria, "The Influences of Japanese and Other Asian Art Forms on Canadian Artistic Activity"

17:00-18:30	**Academy III**	Meetings of Divisions
18:30-19:30	**Academy III**	Wine and Cheese
20:00-22:00	**Society**	Women's Caucus Meeting

Tuesday, 6 June 1990

08:30-10:00	**Académie I**	Assemblée générale annuelle
08:30-10:00	**Academy II**	Annual General Meeting
08:30-10:00	**Academy III**	Annual General Meeting
10:00-12:00	**Society**	Annual General Meeting
12:00-14:00	**Académie I**	Déjeuner
12:00-14:00	**Academy II**	Luncheon: Introduction of New Fellows; New Fellows Speak

12:00-13:30 **Academy III** Luncheon

13:30-14:30 **Academy III** Address by Academy President, Dr. E.A. McCulloch, "Normal and malignant hemopoiesis: models of growth, differentiation and cancer"

14:00-17:00 **Académie I** Colloque:
LE DÉVELOPPEMENT DES RELATIONS DU CANADA AVEC L'ASIE-PACIFIQUE

Atelier I

Président : Jean-Denis Gendron, Université Laval

Claude-Yves Charron, Université du Québec à Montréal, "Évolution des échanges académiques entre le Canada et le Bassin Asie-Pacifique : enjeux, contraintes et perspectives de développement"

Jacques Lamontagne, Université de Montréal, "Disparités dans le développement de l'enseignement supérieur en Chine : développements récents"

Marie-Claire Huot, Université de Montréal, "Panoramique : les relations sino-canadiennes en matière de cinéma"

Atelier II

Présidente : Jeanne Demers, Université de Montréal

Chung-Chi Wen, Université de Moncton, "Aspects sociologiques et politiques de la péninsule malaise"

Claude Comtois, Université de Montréal, "L'avant-pays canadien des ports chinois depuis l'ouverture de la Chine au commerce mondial (1981)"

Alex Macleod, Université du Québec à Montréal, "Le Japon face à la montée du bloc commercial de la CEE : analyse des réactions et des stratégies"

Charles Le Blanc, Université de Montréal, "La modernisation de la Chine dans le miroir de l'histoire : continuités et ruptures"

14:40-17:00	**Academy III**	Presentation of Medallists
18:30-19:45	**Society** Hotel	Reception, Harbour Towers
20:00-22:00	**Society**	Annual Banquet

Presentation of Society Awards:

Bancroft Award: Steven D. Scott
Thomas W. Eadie Medal: F.P. Ottensmeyer
The Flavelle Medal: Peter W. Hochachka
Jason A. Hannah Medal: Anthony A. Travill
The McLaughlin Medal: Tak Wah Mak
Rutherford Memorial Medal in Chemistry: M. Fryzuk
Rutherford Memorial Medal in Physics: S. Tremaine
The J.B. Tyrrell Historical Medal: Hubert Charbonneau and Jacques Légaré

Wednesday, 6 June 1990

09:00-12:00	**Academy III**	Symposium: **MARINE RESOURCES OF THE NORTH PACIFIC**

Chair: Ed Donaldson, Dept. of Fisheries and Oceans

Tanya M. Atwater, University of California, Santa Barbara, "Tectonics of the North Pacific"

Richard J. Hebda and S. Gaye Frederick, Royal British Columbia Museum, "The post-glacial history of coastal marine resources of the Northeast Pacific"

Paul LeBlond, University of British Columbia, "The North Pacific marine environment"

Peter A. Larkin, University of British Columbia, "The fisheries resources of the North Pacific"

12:00-14:00 **Society** Luncheon hosted by the President of the University of Victoria, Dr. H.E. Petch

Guest Speaker: F. Kenneth Hare, "The Society and Scientific Review"

14:00-17:00 **Academy III** Symposium (cont'd)

John Bardach, Environment and Policy Institute, Honolulu, "Aquaculture: potential and constraints"

Michael Waldichuk, Dept. of Fisheries and Oceans, "Industrial and domestic pollution in the North Pacific"

Steven D. Scott, University of Toronto, and James M. Franklin, Geological Survey of Canada, "Mineral resources of the North Pacific Ocean"

Gordon McBean, University of British Columbia, "Possible impacts of climate change on marine resources"

Warren S. Wooster, University of Washington, "Marine science and resources: international issues and opportunities"

17:00-19:00 **Society** Council and Executive

PROGRAMME

samedi, 2 juin

8 h 30-12 h	**Société**	**Comité des relations internationales**
9 h-12 h	**Société**	**Comité d'édition et des publications**
9 h 30-12 h	**Académie I**	**Comité exécutif**
9 h 30-12 h	**Académie III**	**Comité exécutif**
11 h-12 h	**Academy II**	**Executive**
13 h-17 h	**Académie I**	**Conseil**
13 h-17 h	**Academy II**	**Council**
13 h-17 h	**Académie III**	**Conseil**
18 h-20 h	**Société**	**Comité exécutif**

dimanche, 3 juin 1990

9 h-18 h	**Société**	**Inscription**
8 h 30-10 h 30	**Société**	**Comité des colloques**
9 h 30-17 h	**Société**	**Conseil**

15 h- 18 h	**Société**	Colloque : **LES FEMMES DANS LES ARTS, LES LETTRES ET LES SCIENCES : UN PAS EN AVANT, DEUX PAS EN ARRIÈRE?**
		Présidente : Francess Halpenny, University of Toronto Modératrice : Lorna Marsden, Sénatrice
		Rose Sheinin, Vice-Rector Academic, Concordia University, «La suite du 6 décembre»
		Ursula Franklin, University of Toronto «The Sandbox and the Tools»
		Louis Courville, École Polytechnique de Montréal «J'étais là»
		Monique Frize, University of New Brunswick «Women in Engineering»
		Kai Neilson, University of Calgary «Harming the Women: The Backlash to Femininsm?»
		Peta Tancred, McGill University «Harassment and Backlash: Common Threads, Any Solution?»
		Mary Jane Mossman, Osgoode Hall «A Paradigm Shift in Canadian Law Schools?»
17 h 30	**Société**	Repas libre
18 h	**Buffet**	Nouveaux membres
19 h 30	**Société**	Assemblée des nouveaux membres
19 h 45	**Société**	Assemblée des officiers

20 h	**Société**	**Cérémonie d'entée** **Mot de bienvenue :** **Dr S.E. Scully, B.A., M.Litt., Ph.D.** **Vice-Président Académique, University of Victoria** **Présentation des nouveaux membres**
21 h 30	**Société**	**Réception pour les nouveaux membres**

lundi, 4 juin 1990

8 h- 12 h	**Société**	**Inscription**
8 h 30- 9 h 30	**Société**	**Comité des programmes**
9 h- 12 h	**Academy II**	**Colloque :** **CANADA AND THE GROWING PRESENCE OF ASIA** **Organisateur : Mark W. Zacher, University of British Columbia** **Tribune 1 : CANADA AND THE PACIFIC RIM ECONOMY** **Président : Mark W. Zacher, University of British Columbia** **Rod Dobell, Institut de recherches politiques, «The Patterns of Trade and Investment Ties among Pacific Rim States: Canada in the Regional Setting»** **John Helliwell, University of British Columbia, «The Relative Economic Performance of Pacific Rim States»**

Tribune 2 : CANADIAN FOREIGN POLICIES IN ASIA

Président : Ralph Hueneman, University of Victoria

Paul Evans et Bernard Frolic, York University, «Canadian Foreign Policy toward China»

Gérard Hervouet, Université Laval, «Canadian Foreign Policy toward Southeast Asia»

Tribune 3 : CANADIAN TRADE RELATIONS WITH ASIA

Président : Gérard Hervouet, Université Laval

Keith Hay, Carleton University, «Japanese-Canadian Trade Relations»

Ralph Hueneman, University of Victoria, «Chinese-Canadian Trade Relations»

12 h 15-14 h — **Société** — **Déjeuner**
Discours du Président, Dr Digby J. McLaren : «Rétrospection et prospective»

14 h-17:00 — **Academy II** — **Colloque : (suite)**

Tribune 4 : THE IMPACT OF HONG KONG

Président : Rod Dobell, Institut de recherches politiques

Maurice Copithorne, University of British Columbia, «Hong Kong's Impact on Canada: A View from Hong Kong»

Michael Goldberg, University of British Columbia, «The Impact of Hong Kong Investment in Canada: The British Columbia Experience»

Tribune 5 : ASIAN INFLUENCES ON CANADIAN ART

Président : Maurice Copithorne, University of British Columbia

James Caswell et Kian Kwok, University of British Columbia, «Some Influences of Chinese Art on Canadian Art»

Barry Till, Art Gallery of Greater Victoria, «The Influences of Japanese and Other Asian Art Forms on Canadian Artistic Activity»

17 h- 18 h 30	**Académie III**	Assemblée générale des divisions
18 h 30- 19 h 30	**Académie III**	Vin et fromage
20 h- 22 h	**Société**	Réunion : Caucus des femmes

mardi, 6 juin 1990

8 h 30- 10 h	**Académie I**	Assemblée générale annuelle
8 h 30- 10 h	**Academy II**	Annual General Meeting
8 h 30- 10 h	**Académie III**	Assemblée générale annuelle
10 h- 12 h	**Société**	Assemblée générale annuelle
12 h- 13 h	**Académie III**	Déjeuner

12 h- 14 h	**Academy II**	Luncheon : Introduction of New Fellows
13 h 30- 14 h 30	**Académie III**	Discours de Président de l'Académie, Dr E.A. McCulloch, «Normal and malignant hemopoiesis; models of growth, differentiation and cancer»
14 h- 17 h	**Académie I**	Colloque : **LE DÉVELOPPEMENT DES RELATIONS DU CANADA AVEC L'ASIE-PACIFIQUE**

Atelier I

Président : Jean-Denis Gendron, Université Laval

Claude-Yves Charron, Université du Québec à Montréal, «Évolution des échanges académiques entre le Canada et le Bassin Asie-Pacifique : enjeux, contraintes et perspectives de développement»

Jacques Lamontagne, Université de Montréal, «Disparités dans le développement de l'enseignement supérieur en Chine : développements récents»

Marie-Claire Huot, Université de Montréal, «Panoramique : les relations sino-canadiennes en matière de cinéma»

Atelier II

Présidente : Jeanne Demers, Université de Montréal

Chung-Chi Wen, Université de Moncton, «Aspects sociologiques et politiques de la péninsule malaise»

Claude Comtois, Université de Montréal, «L'avant-pays canadien des ports chinois depuis l'ouverture de la Chine au commerce mondial (1981)»

Alex Macleod, Université du Québec à Montréal, «Le Japon face à la montée du bloc commercial de la CEE : analyse des réactions et des stratégies»

Charles Le Blanc, Université de Montréal, «La modernisation de la Chine dans le miroir de l'histoire : continuités et ruptures»

14 h 30-17 h	Académie III	Présentation des médailles
18 h 15 19 h 45	Société	Réception, Harbour Towers Hotel
20 h-22 h	Société	Banquet annuel

Présentation des médailles de la Société
La bourse Bancroft : Steven D. Scott
La médaille Thomas W. Eadie : F.P. Ottensmeyer
La médaille Flavelle : Peter W. Hochachka
La médaille Jason A. Hannah : Anthony A. Travill
La médaille McLaughlin : Tak Wah Mak
La médaille Commémorative Rutherford en chimie : M. Fryzuk
La médaille Commémorative Rutherford en physique : S. Tremaine
La médaille J.B. Tyrrell : Hubert Charbonneau et Jacques Légaré

mercredi, 6 juin 1990

9 h-12 h 00	Académie III	Colloque : MARINE RESOURCES OF THE NORTH PACIFIC

Président : Ed Donaldson, Dép. des Pêches et Océans

Tanya M. Atwater, University of California, Santa Barbara, «Tectonics of the North Pacific»

Richard J. Hebda et S. Gaye Frederick, Royal British Columbia Museum, «The post-glacial history of coastal marine resources of the Northeast Pacific»

Paul LeBlond, University of British Columbia, «The North Pacific marine environment»

Peter A. Larkin, University of British Columbia, «The fisheries resources of the North Pacific»

12 h-14 h — **Société** — Déjeuner parrainé par le président de University of Victoria, D^r^ H.E. Petch

Invité d'honneur : F. Kenneth Hare, «The Society and Scientific Review»

14 h-17 h — **Académie III** — Colloque (suite)

John Bardach, Environment and Policy Institute, Honolulu, «Aquaculture: potential and constraints»

Michael Waldichuk, Dép. des Pêches et Océans, «Industrial and domestic pollution in the North Pacific»

Steven D. Scott, University of Toronto, et James M. Franklin, Commission géologique du Canada, «Mineral resources of the North Pacific Ocean»

Gordon McBean, University of British Columbia, «Possible impacts of climate change on marine resources»

Warren S. Wooster, University of Washington, «Marine science and resources: international issues and opportunities»

17 h-19 h — **Société** — Conseil et Exécutif

Revision of By-Laws Révision des statuts

(février 1990)

10. OFFICERS, COMMITTEES, AND DIVISIONS OF THE ACADEMIES

10.1 Each academy may elect a council and a program committee and appoint other committees as required.

10.2 Each Academy shall define the duties of its own officers.

10.3 Each Academy may form divisions whose work shall be: to assist in the nomination and selection of candidates in their disciplines for election to Fellowship; to propose candidates for awards of the Society in their disciplines; and to take other actions within the objectives of the Society to promote their disciplines.

10.4 The officers of the Council of each Academy shall be nominated and elected by ballot, normally with two candidates for each vacant position. A nominating committee shall propose the candidates for election to Council. The results shall be announced at the Annual Business Meeting.

10.4.1 The officers of Academies I and II shall be a President, the Past President, a Vice-President, and a Secretary. They shall be elected for a three-year term at the annual business meetings of the Academies.

10.4.2 The officers of Academy III shall be a President, the Past President, two Vice-Presidents, and a Secretary. The officers shall serve for a single three-year term, except the Secretary who may have a renewable term.

10.4.3 If the position of an officer of an Academy shall become vacant, a temporary officer may be appointed by the Council of the Academy, or if the Council is not in session, by the remaining officers of the Academy, to hold office until the next Business Meeting of the Academy. All such appointments shall be immediately reported to the Honorary Secretary of the Society and shall be reported to the next meeting of the Council and of the Executive Committee.

10.5 Academies I and II shall at their Annual Business Meeting elect a committee of new Fellows to recommend the candidates for election to the Society. The members of that committee who normally also serve as member of the Council of Academies I and II are elected for a three-year term.

10.5.1 Academy III shall proceed with a two-tier system to review nominations for Fellowship: a Division Fellowship Review Committee (DFRC) and a Council Fellowship Selection Committee (CFSC); the CFSC shall not change the ranking of more than 20 per cent of the ranked lists submitted by the DFRC.

10.5.2 Each Division within Academy III shall establish a Fellowship Review Committee (DFRC) comprising 6-8 Fellows, including a Director and Secretary, with members serving staggered three-year terms. The disciplines represented by the individuals on the division executive should broadly span those included in the Division. The Director shall represent the Division on the council Fellowship Selection Committee (CFSC).

The DFRC shall annually review nominations for Fellowship; it shall assist in ensuring a wide and reprsentative pool of nominations, and an enlarged pool with candidates from under-represented groups. The DFRC shall submit a ranked slate of nominees to the CFSC that totals up to twice their Division quota for Fellows and may make proposals for Specially

Elected Fellows or Honorary Fellows. The CFSC will review all nominations submitted by the DFRC and consider any nominations for Specially Elected or Honorary Fellows.

The CFSC shall submit their list of selected Fellows to the Academy Council for approval at the January Council Meeting of the Society. The approved list will be circulated to all Fellows; any nomination receiving more than 10 per cent rejection by the Fellowship will be withdrawn.

11.1 There shall be a Council of the Society which shall consist of the Officers of the Society and of the Academies, the President-Elect, the Honorary Editor, the Honorary Librarian-Archivist, the Foreign Secretary, the Chairperson of the Symposia Committee, the Chairperson of the Awards Committee, the immediate Past President for the two years following his or her retirement from the office, and one additional member from Academy III who shall be elected annually at the Annual Business Meeting of the Academy, except that if a vacancy occurs a member may be appointed by the Council of the officers of the Academy to fill the vacancy until the next Business Meeting of the Academy.

11.1.1 In the event no woman is elected to Council in the normal course, the chairperson of the Committee for Advancement of Women in Scholarship shall be a member of Council.

12. NOMINATION, SELECTION, ELECTION AND INDUCTION OF FELLOWS

12.1 NOMINATION OF CANDIDATES

12.1.1 HONORARY FELLOWS: The President may nominate candidates for election as Honorary Fellows. Not more than two such Fellows may be elected to the Society in any two-year period.

12.1.2 FELLOWS: Candidates may be nominated for fellowship in an Academy by three nominators, of whom at least two shall be Fellows of the Society, on a form approved by the Council.

following; a one-hundred word citation, a detailed appraisal of the candidate's work, a curriculum vitae, a list of the candidate's publications, and, in the case of Academy III, normally recommendations of three referees. In the case of Academies I and II, it is recommended that at least two names of referees be provided. One of the sponsoring Fellows shall be responsible for the preparation of the nomination file (dossier).

12.1.3 SPECIALLY ELECTED FELLOWS: Fellows may be nominated for election under paragraph 4.1.3 by three nominators, of whom at least two shall be Fellows of the Society, on a form approved by the Council. The nomination shall be accompanied or include the following: a one-hundred word citation, a detailed appraisal of the candidate's work, a curriculum vitae, a list of the candidate's publications, and normally recommendations of three referees. One of the sponsoring Fellows shall be responsible for the preparation of the nomination file (dossier).

12.1.3.1 To be considered for the next election, nominations, including the suggestion as to which academy the candidate shall be assigned, shall be submitted to the Honorary Secretary two weeks before the September meeting of the Executive Committee.

12.2 SELECTION OF CANDIDATES

12.2.1 The Committee on New Fellows of each Academy (the CFSC for Academy III) shall recommend the following number of new Fellows to their respective Academies:

Academy I:	not more than 10 in each year;
Academy II:	not more than 20 in each year;
Academy III:	not more than 30 in each year.

The distribution of new Fellows per division of Acadmey III shall be: Applied Sciences and Engineering (4), Earth and Space Sciences (6), Life Sciences (12), and Mathematical and Physical Sciences (8). In order to redress imbalances, the CFSC may, in any particular year, re-allocate this quota by up

to 20 per cent of the new Fellow positions from this basic distribution.

12.2.2 The selection committee for the election of Specially Elected Fellows shall be the Executive Committee. Its recommendation shall be submitted to the Committees on new Fellows of each Academy; the Committees shall submit their recommendations to Council at its January meeting. The Council may recommend to the Society the election of not more than one such Fellow in any year and shall recommend the Academy to which he or she shall be elected; the Fellow shall be in addition to the number or Fellows allowed by Paragraph 12.2.1.

A total of ten (10) Special Fellows may be elected for any ten-year period with no more than two in any one year as of the date of approval — June 1988. If approved by each body, the nomination shall be submitted to the Society.

12.3 ELECTION OF FELLOWS

12.3.1 ELECTORATES

12.3.1.1 Honorary Fellows shall be elected by the Council by an affirmative vote of two-thirds of its members or three-quarters of the members present at a meeting.

12.3.1.2 Fellows shall be elected by a secret vote of the Academy to which they have been nominated.

12.3.1.3 Specially Elected Fellows shall be elected by a secret vote of the Society.

12.3.2 ELECTIONS

12.3.2.1 The Honorary Secretary shall, before 1 March, forward the following items to each member of the Society:

— A ballot containing the names of the candidates selected by the Committee on New Fellows of the member's

Academy, and the names of the candidates recommended for election as Specially Elected Fellows;

— A copy of the citation of each candidate whose name is on the ballot;

— A sealable envelope for the ballot. The envelope shall be provided with a means of associating it with the member's signature in such a way that the signature can be later dissociated from the envelope.

12.3.2.2 Each member may vote for or against or abstain from voting on any of the candidates on his/her ballot. The ballot shall be placed and sealed in the ballot envelope, the member shall sign in the allotted space, and the envelope shall be sent to the Society. The ballot must be received at the head office of the Society by 1 April in order to be counted.

12.3.2.3 An employee of the Society who shall be designated by the Council shall verify the member's signature against the list of members and shall then dissociate the ballot envelope from the signature and place the envelope in a ballot box.

12.3.2.4 The ballot box shall be opened and the ballots counted on or after 1 April in the presence of at least two of the following persons: the Honorary Secretary, the Honorary Treasurer, and an employee of the Society who shall be designated by the Council.

12.3.2.5 Of the candidates selected by the Committees on New Fellows of the Academies, those who have been voted against by fewer than ten per cent of the Fellows voting on the candidate shall be declared elected.

12.3.2.6 The candidates for election as Specially Elected Fellows who have been voted for by a majority of the Fellows of the Society or on seventy-five per cent of the ballots submitted shall be declared elected.

12.3.2.7 The elected candidates shall be notified of their election immediately and they shall be asked to state in writing whether they will accept Fellowship in the Society.

12.4 INDUCTION OF FELLOWS

12.4.1 Each elected Fellows shall be formally inducted into the Society at an Annual Meeting. Each elected Fellow shall be presented by an Officer of his Academy to the President of the society who shall welcome him into membership. The newly inducted Fellow shall sign the membership book and thereby undertake to promote the interests and object of the Society.

15.2.1 There shall be an Editorial and Publications Committee which shall consist of the Honorary Editor appointed by the Council of the Society and three members, one each appointed by the Council of each Academy. All of them will serve a three-year term. The Honorary Editor will attend at least one meeting of the Executive Committee annually, will report to the council and present an annual report at the Annual Meeting.

15.2.2 The publications of the Society, which do not serve the same purposes nor the same publics, are divided under four headings:

Group I publications include special reports and publications issued only after having been submitted and approved by the Executive and Council of the Society. The President should have the ultimate responsibility for the editorial arrangements (format, content, finance, review and evaluation).

Group II publications include the *Transactions*, *Proceedings*, official collection of books, and all other publications devolved to it by the Executive and Council. These publications are the responsibilities of the Editorial and Publications Committee.

Group III publications are those undertaken by the Society as a whole or by one of the academies. In the first instance, editorial arrangements are decided by the Executive Committee and reported to Council. In the second instance, the editorial arrangements are established by the Council of the responsible

Academy and is reported and approved by the Executive committee. The editorial responsibilities, in either of these two instances, may be given to the Honorary Editor, a member of the Editorial and Publications Committee, a special committee or another party.

Group IV publications are the administrative documents of the Society. The Executive Director is responsible for their editorial arrangements. Depending on the nature of these documents, they should not be issued without the permission and authorization of the Executive Committee or Council.

15.2.3 Abolished

15.5.1 There shall be an Awards Committee which shall consist of a Chairperson, who shall be appointed for a three-year term by the Council, and the Past President and Secretary of each Academy. Members of this Committee cannot be recipients of these awards while in office.

STATUTS

10. MEMBRES DU CONSEIL, COMITÉS ET DIVISIONS D'ACADÉMIES

10.1 Chaque académie a le droit d'élire un Conseil et un Comité du programme; elle peut aussi, le cas échéant, former d'autres comités.

10.2 Chaque académie définit les fonctions des membres de son Conseil.

10.3 Chaque académie peur former des divisions dont les principales tâches sont: d'assister dans la nomination et la sélection de nouveaux membres dans les différentes disciplines; de proposer des candidats susceptibles de recevoir des distinctions et prix parmi ceux qu'accorde la Société; et de prendre toutes autres mesures conformes aux objectifs de la Société et tendant à l'avancement de leur discipline.

10.4 Les membres du Conseil de chaque académie sont nommés et élus par vote, normalement avec deux candidats pour chaque poste vacant. Le Comité des candidats recommande les candidats pouvant être élus au Conseil. Les résultats sont annoncés à l'assemblée générale ordinaire annuelle.

10.4.1 Les membres des Conseils des Académies I et II sont le président, le président sortant, le vice-président et le secrétaire. Ils sont élus pour un terme de trois ans à l'assemblée générale de leur académie respective.

10.4.2 Les membres du Conseil de l'Académie III sont au moins le président, le président sortant, deux vice-présidents, et un secrétaire. Les membres sont élus pour un seul terme de trois ans, à l'exception du secrétaire dont le terme peut être renouvelé.

10.4.3 Si le poste d'un membre du Conseil d'une académie ou, si celui-ci ne siège pas, les autres membres du Conseil peuvent pourvoir à son remplacement temporaire jusqu'à la prochaine réunion d'affaires. Le secrétaire de la Société est avisé immédiatement du nom du ou des remplaçant(s); ces noms sont communiqués aux membres du Comité exécutif et du Conseil de la Société à l'occasion de leur prochaine réunion.

10.5 Les Académies I et II élisent un Comité des candidatures qui recommande des candidats pouvant être élus à la Société. Les membres de ce Comité qui, normalement, servent aussi au Conseil des Académies I et II sont élus pour un terme de trois ans.

10.5.1 L'Académie III procède à la nomination des candidats pouvant être élus à la Société par un système à deux niveaux: un Comité de revue des candidats de chacune des divisions (CRCD) et un Comité de sélection des candidats du Conseil (CSCC); le CSCC ne peut pas changer plus de 20 pour cent des noms de la liste soumise par le CRCD selon ses priorités.

10.5.2 Chacune des divisions de l'Académie III forme un Comité de revue des candidatures (CRCD) composé de six à huit membres, incluant un directeur et un secrétaire, et des

membres nommés pour des termes s'échelonnant sur trois ans. Les membres du Conseil de la division doivent représenter le plus de disciplines possibles. Le directeur d'un CRCD est membre du CSCC.

Le CRCD fait une revue annuelle des candidatures des nouveaux membres; il s'assure d'une sélection aussi large et vaste que possible de candidats, en s'assurant que les groupes sous-représentés ne sont pas négligés. Le CRCD soumet une liste de candidats par priorité, avec deux fois plus de noms que le total alloué au CSCC; il peut aussi proposer des noms de futurs membres d'honneur et de membres à titre spécial.

Le CSCC soumet la liste des candidats choisis au Conseil de l'Académie III pour approbation à la réunion de janvier du Conseil de la Société. La liste des candidats approuvés est envoyée à tous les membres; tout candidat dont le nom est rejeté par plus de dix pour cent des membres est retiré de la liste.

11.1 Le Conseil de la Société se compose des directeurs de la Société et des membres des Conseils des académies, du président élu, du directeur des publications, du bibliothécaire archiviste, du secrétaire pour les affaires étrangères, du président du Comité des colloques, du président du Comité des distinctions, du président sortant pendant l'année qui suit l'expiration de son mandat et d'un membre supplémentaire de l'Académie III, qui sont élus par l'assemblée générale ordinaire de l'académie; en cas de vacance, le Conseil de l'académie pourvoit à cette vacance jusqu'à la prochaine assemblée générale.

11.1.1 Dans l'éventualité où une femme n'est pas élue au Conseil, le président du Comité pour la promotion de la femme sera un membre du Conseil.

12. CANDIDATURES, SÉLECTION, ÉLECTION ET RÉCEPTION DES MEMBRES

12.1 PRÉSENTATION DES CANDIDATURES

12.1.1 MEMBRES D'HONNEUR. Le président peut recommander des candidats à l'élection comme membres d'honneur. Le nombre de ces membres élus à la Société est limité à deux tous les deux ans.

12.1.2 MEMBRES. Les mises en candidatures dans chaque académie sont faites par trois nominateurs, dont au moins deux sont membres de la Société, en se servant d'un formulaire établie à cette fin par le Conseil. La mise en candidature est accompagnée, ou inclu une notice de cent mots au plus, une appréciation détaillée des travaux du candidat, un curriculum vitae, une liste des publications du candidat, et normalement une liste de références de trois personnes. L'un des parrains-membres de la Société est responsable de la préparation et du suivi du dossier du candidat.

12.1.2.1 Les candidatures sont adressées au secrétaire de l'académie. Celles que l'on considère dans l'année en cours sont adressées avant le 15 novembre dans le cas des Académies I et II, et avant le 15 octobre pour l'Académie III.

12.1.3 MEMBRES À TITRE SPÉCIAL. La mise en candidature de ces membres aux termes du paragraphe 4.1.3. se fait par trois nominateurs, dont au moins deux sont membres de la Société en se servant d'une formulaire établie à cette fin par le Conseil.

La mise en candidature est accompagnée ou inclu une notice de cent mots au plus, une appréciation détaillée des travaux du candidat, un curriculum vitae, une liste des publications du candidat et normalement une liste de références de trois personnes. L'un des parrains-membres de la Société est responsable de la préparation et du suivi du dossier.

12.1.3.1 Pour être étudiées en vue de la prochaine élection, les candidatures, y compris les propositions en ce qui a trait à l'académie dont le candidat fera partie, doivent être présentées au secrétaire deux semaines avant la réunion de septembre du Comité exécutif.

12.2 SÉLECTION DES CANDIDATS

12.2.1 Le Comité de sélection des nouveaux membres de chaque académie (le CSCC dans le cas de l'Académie III) recommande le nombre suivant de nouveaux membres:

Académie I:	ne doit pas dépasser 10 chaque année
Académie II:	ne doit pas dépasser 20 chaque année
Académie III:	ne doit pas dépasser 30 chaque année

L'allocation des nouveaux membres de l'Académie III est la suivante pour chacune des divisions: 4 en sciences appliquées et génie, 6 en sciences de la terre et de l'espace, 12 en sciences médicales et 8 en sciences physiques et mathématiques. Afin de maintenir un certain équilibre, le CSCC peut réallouer jusqu'à vingt pour cent du nombre total de candidats proposés dans une année donnée.

12.2.2 Le Comité exécutif fait office de Comité de sélection pour l'élection des membres à titre spécial et les candidatures qu'il propose sont présentées au Comité des candidatures de chaque académie; les Comités présentent leurs recommandations au Conseil lors de sa réunion de janvier. Le Conseil ne peut proposer à la Société d'élire qu'une seule personne par année et il recommande à quelle académie cette personne doit appartenir; cette personne sera en plus du nombre de membres autorisés à cette académie par le paragraphe 12.2.1. Un total de dix (10) membres à titre spécial peuvent être élus dans une période de dix ans. Un maximum de deux (2) membres à titre spécial peuvent être élus dans une même année, à partir de la date d'approbation de cette proposition — juin 1988. La candidature est soumise à la Société si elle a été acceptée par les Comités compétents.

12.2.3 Les noms des candidats sont retenus par la Société tant que les candidats n'ont pas été déclarés élus conformément à l'article 12.3.

12.3 ÉLECTION DES MEMBRES

12.3.1 CORPS ÉLECTORAUX

12.3.1.1 Les membres d'honneur sont élus par un vote affirmatif des deux tiers des membres du Conseil ou par les trois quarts des membres présents à la réunion.

12.3.1.2 Les membres sont élus au scrutin secret par l'académie qui les choisit.

12.3.1.3 Les membres à titre spécial sont élus au scrutin secret de la Société.

12.3.2 ÉLECTION

12.3.2.1 Avant le 1er mars, le secrétaire envoie à chaque membre de la Société les documents suivants:

— un bulletin de vote portant les noms des candidats choisis par le Comité des candidatures de l'académie de ce membre et les noms des candidats recommandés comme membres à titre spécial;

— un exemplaire de la notice de chaque candidat dont le nom figure sur le bulletin de vote;

— une enveloppe qui doit être retournée cachetée pour le bulletin de vote, une enveloppe munie d'un dispositif permettant d'identifier l'électeur et de détacher sa signature.

12.3.2.2 Chaque membre vote pour ou contre ou s'abstient de voter pour n'importe quel candidat de la liste. Le bulletin de vote est placé dans l'enveloppe spéciale, le membre la signe dans l'espace indiqué et la retourne à la Société. Pour être compté dans le dépouillement, le bulletin doit parvenir au siège social de la Société au plus tard le 1er avril.

12.3.2.3 Un(e) employé(e) de la Société désigné(e) par le Conseil vérifie le nom du votant sur la liste des membres, détache le nom de l'enveloppe du scrutin et dépose cette dernière dans l'urne.

12.3.2.4 Le dépouillement a lieu à compter du 1er avril en présence d'au moins deux personnes choisies parmi les suivantes: le secrétaire, le trésorier et l'employé(e) de la Société désigné(e) par le Conseil.

12.3.2.5 Les candidats présentés par les Comités des candidatures des académies et contre qui ont voté moins de dix pour cent des membres votants sont déclarés élus.

12.3.2.6 Les candidatures de la catégorie «membres à titre spécial» qui ont recueilli plus de la moitié des voix des membres de la Société ou 75 pour cent des suffrages exprimés sont déclarés élus.

12.3.2.7 Les candidats élus sont avisés immédiatement de leur élection et sont priés de déclarer par écrit s'ils acceptent de devenir membres de la Société.

12.4 CÉRÉMONIE DE RÉCEPTION

12.4.1 Chaque membre élu est officiellement reçu au sein de la Société lors de l'Assemblée générale. Il est présenté par un membre du bureau de son académie au président de la Société qui lui souhaite la bienvenue et le reçoit officiellement. Le nouveau membre signe le livre d'or et s'engage à promouvoir les buts et intérêts de la Société.

15.2.1 Le Comité d'édition et des publications est composé du directeur des publications, nommé par le Conseil de la Société et de trois membres, chacun d'eux nommé par le Conseil de chaque académie. Tous sont nommés pour un terme de trois ans. Le directeur des publications assiste à au moins une réunion par année du Comité exécutif; il relève du Conseil et présente son rapport annuel à la réunion annuelle.

15.2.2 Les publications de la Société qui répondent à différents besoins et ne servent pas les mêmes publics, sont divisées en quatre groupes:

Groupe I inclut les rapports spéciaux et publications qui ont été soumis et approuvés par le Comité exécutif et le Conseil

de la Société. Le président a la responsabilité ultime des dispositions éditoriales (format, contenu, aspect financier, revue et évaluation).

Groupe II inclut les *Délibérations*, les *Mémoires*, collections officielles de volumes et autres publications autorisées par le Comité exécutif et le Conseil. Le Comité d'édition et des publications est responsable de ces publications.

Groupe III inclut les publications assumées par la Société elle-même ou l'une de ses académies. Dans le premier cas, le comité exécutif agit comme éditeur et tient le Conseil au courant. Dans le second cas, les dispositions éditoriales sont établies par le Conseil de l'académie responsable, rapportées et exécutées par le Comité exécutif. Les responsabilités éditoriales dans les deux cas sont confiées, soit au directeur des publications, soit à un membre du Comité d'édition et des publications, soit à un Comité spécial ou soit à une autre personne.

Quand on confie la responsabilité à un autre Comité spécial ou à une autre personne, elle doit tenir le directeur des publications au courant et, autant que possible, suivre les directives de comité d'édition et des publications.

Groupe IV inclut les documents administratifs de la Société. Le directeur général est responsable de ces publications. Selon le genre de ces documents, ils ne doivent pas être publiés sans la permission et l'autorisation du Comité exécutif et du Conseil.

15.2.3 Aboli

15.5.1 Le Comité des distinctions est composé d'un président, nommé pour un mandat de trois ans par le Conseil, du président sortant et du secrétaire de chaque académie. Les membres de ce Comité ne peuvent pas être des récipiendaires de distinctions tant qu'ils sont en fonction.

ADDRESS TO THE SOCIETY AT THE ANNUAL DINNER/ ADRESSE AUX MEMBRES AU BANQUET ANNUEL

5 June 1990 / 5 juin 1990

by / par

DIGBY J. McLAREN, PRESIDENT/PRÉSIDENT

It is with mixed feelings that I address you at the end of three years as President of your Society. It has been a rich and varied experience, and I am proud to have had a part in the continuing advance of the Society to full recognition as Canada's National Academy. I do not intend to review my three years with you now, other than to thank all of you who have been associated with me in any way in Executive, Council, and Committees, formal and informal, for your support, and your guidance. Decision-making is not easy in a Society such as ours, and consensus sometimes hard won.

THE SOCIETY

Progrès

Il nous faut retourner près de vingt ans en arrière afin de retracer la détermination qui anime aujourd'hui la Société, dans ses efforts pour représenter de manière plus efficace les scientifiques canadiens et pour se voir confirmer dans son rôle d'Académie nationale. Parmi les autres initatives de la Société, Tuzo Wilson encouragea en 1972-1973 pendant son mandat à la présidence, la tenue d'un colloque scientifique n'importe quand au cours de l'année, en plus de l'assemblée annuelle. Cette pratique se poursuit encore aujourd'hui. Larkin Kerwin, président en 1976-1977, déploya de nombreux efforts afin que la Société soit reconnue comme l'Académie nationale du Canada. Afin d'atteindre cet objectif, il prépara un document définissant la nature d'une académie. Ce document fut très précieux lors des pourparlers avec le gouvernement au cours des trois dernières années, ainsi que dans l'élaboration du Plan d'ensemble de la Société. Afin d'améliorer le processus de planification et pour encourager la mise en oeuvre de programmes à long terme, il fut proposé et approuvé d'étendre le mandat du président à trois ans, et de prolonger également les mandats des présidents des académies et des membres de leur exécutif respectif. Le bien-fondé de cette mesure fut démontré, lors d'une réunion régionale tenue à Ottawa en 1985, par Gilles Paquet,

lorsqu'il fit la lecture de son essai «*Have Gun, Will Travel*» sur une Société regénérée. Ce défi fut relevé avec enthousiasme par Sandy MacKay au cours de son mandat à la présidence. En avril 1986, il me demanda s'il pouvait proposer ma candidature comme président pour un mandat qui entrerait en vigueur en juin 1987. Dans un moment de faiblesse, j'acceptai sa requête.

I leave without regret, and hope to continue some of my interests on behalf of the Society for a bit longer. I find great satisfaction in the fact that I shall be succeeded in the presidency by Chief Justice Jules Deschênes. This distinguished jurist was unknown to me personally, although not by repute, when Jacques Légaré and I lunched with him at the Club St-Denis in Montréal and we invited him to become Président-élu. Over the last year, I have realized how wise this was, and I contemplate the future of the Society with satisfaction and confidence, knowing that its affairs will be directed by him. I am proud that during his presence as Président-élu he has become a close personal friend as I have got to know the warmth of his character, and the steel of his judgment and integrity.

Now as this is a presidential address I should say something about my views on the Society, but I also want to tell you something about my own interests in recent years, and why I think they may be or should be of interest to the Society. First of all a few comments from the many impressions I have received on aspects of our program.

Political Visibility

Comme c'est le cas pour la plupart des activités humaines, plusieurs de nos activités comportent une certaine dimension politique. Cela ne signifie pas cependant que nos intérêts y soient reliés ou que nous appuyions un parti ou un groupe politique, et ne doivent pas non plus être perçues de cette manière. À vrai dire, il est extrêmement important que nos commentaires sur les grandes questions nationales et régionales soient exprimés indépendamment de tout intérêt d'ordre politique ou émotif. Nos conclusions doivent s'appuyer sur l'expérience et résulter d'un raisonnement inductif solide. On pourrait croire que le Programme des changements à l'échelle du globe soit particulièrement vulnérable aux pressions des groupes qui ont un intérêt spécifique à l'égard de ces questions. Les participants ont pourtant réussi à conserver leur impartialité en faisant part de leurs observations et des résultats disponibles aux parties intéressées. Once a social or scientific conclusion has become associated with a particular interest group, political party, or even with a catch-phrase, then a large number of people will become its opponent

without dignifying the theme with thought or argument. I believe that we should not be timid in accepting or instituting programs, inquiries, symposia or discussions that involve major political issues. We are able to publish and disseminate opinions from a wide variety of experts, whether in the Society or not, and surely the government and people of Canada may benefit from debate based on the wisdom that may emanate from many disciplines, and represent differing points of view. It is always difficult to give examples in general discussions of this nature, but here are a few examples of "dynamite" issues: family planning in Canada and globally; environmental assessment, including such matters as the siting of pulp mills and dams; farming practices; changes in patterns of energy use, both quantitative and qualitative; the dangers of producing certain classes of chemical compounds and the possibilities for replacement; the ethics of resource overuse and disposal of wastes; the striving for global equity.

Interdisciplinarity

By its nature, the fellowship represents a very broad spectrum of knowledge, capacity and interest. Problems or issues that involve a single discipline or sub-discipline are probably better dealt with by the society or guild which represents that discipline only. In today's world, however, there are few public issues that do not involve more than one discipline and indeed many must involve the physical, biological and social sciences as well as the humanities and ethics. We may look with some pride at our recent activities that involve a mix of disciplines, e.g. AIDS, Tobacco, Nicotine and Addiction, Public Awareness of Science, Nuclear Safety, Lead in the Environment, Women in Scholarship, and the two great programs on Evaluation of Research and Global Change. Internally, the discussions may be highly technical within and between disciplines but conclusions and reports must represent a distillate of the best opinions available to us, wherever they may be, and are necessarily expressed in language available to all.

Éducation

J'aimerais vous exprimer brièvement mes propres convictions sur un sujet qui me tient à coeur et envers lequel, je le souhaite, la Société envisagera de consacrer de sérieux efforts, si elle en a le pouvoir. Les éducateurs cherchent encore aujourd'hui des solutions rapides, susceptibles d'améliorer la situation actuelle dans la communauté étudiante aux niveaux secondaire et pré-universitaire. On trouve, entre autres, dans les

programmes scolaires, des suggestions visant à améliorer le rendement des étudiants du niveau secondaire en mathématiques et la performance des étudiants au niveau pré-universitaire en anglais. Au Canada, le programme scolaire est un domaine qui relève de la compétence provinciale, mais le temps est venu d'introduire dans les théories pédagogiques les découvertes faites récemment sur le plan neurologique et sur le plan du développement de l'être humain. Selon ces découvertes, qui débutèrent avec Penfield, il semble que nous gaspillions le potentiel des enfants, de la naissance à la puberté, et que cela pourrait bien être l'élément le plus important de l'approche éducative. N'est-ce pas là un sujet d'étude approprié pour la Société?

Opinions or Authority

The Corporate Plan, which you signed off last year, confirms our role as a Society with a defined responsibility. From its inception, the Society has been required to provide a service to the nation, government and people, by mobilizing its capacity in many different disciplines to the solution of complex problems — most of them not definable in terms of a distinct discipline.

Do our reports represent opinions based upon the authority of knowledge, and recommended by the Society because of that authority, or should our reports constitute, in effect, *ex cathedra* pronouncements, bearing the authority of the Society as a whole? This question has surfaced recently in the discussions over the Society's role in publishing the study on **Tobacco, Nicotine, and Addiction**, which was referred to in the President of the Academy of Science's recent letter to all members as well as in my President's letter of March 1 this year. The cover of this report states that it is a committee report prepared at the request of the Royal Society of Canada for the Health Protection Branch, Health and Welfare Canada. The report makes clear that the Society requested the distinguished research committee led by Harold Kalant, representing five disciplines, to undertake the study and report through the Society to the Department of Health and Welfare. This is a topic that I believe must be faced firmly by the Society as we increase our power and capacity to react to demands and issues. Currently, demands on our time are increasing and it is most encouraging to note that many of these are received from within the fellowship.

J'ai découvert au cours de mes trois années à titre de président de la Société — pendant lesquelles j'ai présidé de nombreuses réunions du Comité de direction, du Comité exécutif et du Conseil — la variété des disciplines que nous représentons, et de ce fait, la richesse, la vigueur

et la diversité des opinions que nous émettons. La question suivante m'est venue à l'esprit : si la Société, dans son ensemble, tentait un jour de se prononcer sur une question d'ordre technique, moral ou social, comment un comité de 1300 membres parviendrait-il à un consensus? *Quot homines tot sententiae.*

THE PRESENT SITUATION, A PERSONAL VIEW

State of the Planet

The current efforts to establish the Royal Society of Canada as a national academy coincides with a growing awareness, globally, of a unique crisis situation facing human occupancy of the planet, and the delicate balance of all life. I believe that this crisis will and must influence the way in which we interpret our mandate as a national academy. Here is scope for leadership and a unifying theme for all disciplines. Certain global facts are apparent in regard to planetary occupancy that illustrate the uniqueness of today over all recorded history:

- population of over five billion and growing rapidly;
- energy use (largely fossil fuels) growing and accelerating;
- massive and irreversible destruction of plant and animal life, accelerating;
- expenditure of about one trillion dollars a year on war and preparation for war.

Added to these facts certain approximations must be mentioned; twenty percent of the world's population uses about eighty percent of the resources of all kinds, and produces the same proportion of waste, also accelerating; the disparity between North and South is increasing, and capital flow is currently south to north; instability and inequity is increasing rapidly within nations and globally.

Evidence from the Past

I now want to leap to the past. I am a geologist and during my career have worked, among other things, on past mass extinctions. Geologists deal with long periods of time and most geological processes are slow-acting. The powerful and majestic movements of crustal plates produce huge changes over long periods, but move at rates of a few centimetres a year. Such rates can, however, allow a crustal mass to cross the Pacific in about the average duration of a geological system, say

50 million years. But there are also sudden and quick-acting events of great power: earthquakes, volcanic eruptions, and meteorite strikes with secondary effects of tsunami and climate change. For a balanced discussion of the kinds of events that are affecting us today I suggest the Society's recent publication, **Planet under Stress** (Oxford University Press) or **La Terre en péril** (Les Presses de l'Université d'Ottawa).

One class of these sudden events has been the killing of a large proportion of the earth's biomass which leads to the extinction of many species (kinds) of animals and to a lesser degree, plants. There is controversy over causes, but sudden geological happenings are invoked by the two main theories: meteorite impact and mega-volcanic episodes. Both are known to occur, but the latter, volcanic episodes, may be caused secondarily by a giant impact. Some extinctions have wiped out up to eighty percent of all species, and possibly the degree of biomass-killing may have been even larger. Recovery from such events is slow, measurable in millions of years. These theories and phenomena are the subject of an active research program, which generates much controversy.

Today's Problem

Now all of this has a message for today. Global Change phenomena are being studied by scientists from many disciplines concerned with the atmosphere, hydrosphere and lithosphere, as well as the biosphere which pervades them all. Many of the disciplines involve the study of slow-acting phenomena, that is, slow in relation to human generations. There are, however, faster acting phenomena observable in a human time-span down to even daily or hourly. These include fluctuations in climate from local to continental or global scales; fluctuations in solar activity; fluctuations in natural population dynamics of many animals. There is a tendency among some scientists engaged in global change studies to consider current planetary changes as slow-acting and this attitude is to be found in some of the planning for International Geosphere-Biosphere Program activities. My message is concerned with demonstrating that many of the global change phenomena induced by human beings as well as many of the forcing functions and resultant changes are taking place rapidly and at an uneven rate; in fact most are accelerating. Natural earth systems, for the most part, exhibit variation in a non-linear fashion, and the interactions between two or more such systems are inevitably chaotic and therefore unpredictable.

It appears, therefore, that in the present human condition on earth we are faced with natural systems whose behaviour is unpredictable, and superimposed upon these systems are human-induced changes which

increase the probability of unstable or chaotic interactions. Furthermore one cannot talk about stabilization or equity, or use that ubiquitous catch-phrase "sustainable development", while all the influences that are disrupting our home planet are growing and most of them at accelerating rates. While this goes on, today's palliative measures will not be sufficient tomorrow. Sustainable development implies stasis, although some of its advocates still suggest growth, and they mean growth in an economic model with no limits. But in the real world there is already a net decrease in resource availability, e.g. minerals and fuels, soil, groundwater, forests, biodiversity on land and sea, and an increase in disrupting factors: population, ozone depletion, atmospheric poisoning: CO_2, NO_x, SO_2, CH_4, O_3, particulates and aerosols, river and lake pollution, marine pollution — chemical and physical, misuse of money and human ingenuity on "defence", and the huge social burden of increasing technological innovation.

We are forced to conclude that the real problems to be solved, although caused by the shattering effect of the technological explosion initiated by the Industrial Revolution are social and moral. We must make hard decisions in recognizing the immediate necessity to reduce our excessive use of resources including ending runaway increase in energy use from fossil fuels and the concomitant massive and accelerating production of wastes, as well as increasing numbers of the people on the planet faced with starvation, dirty water, reduced life expectancy and a universal decrease in quality of life. We are held back by unthinking acceptance of an economic system based on untenable assumptions regarding the necessity for growth that ignore the very real phenomenon of resource depletion and deny real measures that might lead to greater equity. An ominous indication of the supremacy of an outdated and dangerous economic model comes from the statement made by the United States at the 34 nation environment meeting held in Bergen in May to the effect that "the huge cost of cleaning up the planet could damage the world economy" and "efforts to freeze emissions of carbon dioxide at current levels could cut world economic growth in half".

Economic System

How do current economic systems appear in the light of what we are finding out about the crisis situation currently facing us? How do they contribute to values, instincts and institutional structures that inhibit a reform of human behaviour toward survivability?

In 1971, Georgescu-Roegen introduced thermodynamics into economic theory. He pointed out that our natural dowry on earth consists of two essentially distinct elements: the stock of low entropy on or within the globe and the flow of solar energy. He went on to claim that the future depends on the relative importance of these two elements and that the entire stock of natural resources is not worth more than a few days of sunlight. His views have recently been thoroughly discussed and form the basis for suggesting a major revision of modern economic theory by Daly and Cobb (**For the Common Good**, 1989). It is clear that the start of the Industrial Revolution marked a fundamental change in the capacity of our race to dominate the environment — the change from the use of solar energy, stored in plants and animals to energy from fossil fuels and mineral resources stored in the crust of the earth.

Economic systems have been designed to emphasize short-term profit as a benefit and have not put a real cost on the resources we consume. There must be a "price" put on such commodities as soils as well as groundwater, surface waters, atmosphere and the biosphere — or the sum total of all kinds of life on earth. Yet the term "price" is merely a conventional way of referring to the value of natural resources. They are, in fact, invaluable or infinitely valuable. Until recently economic thinking appears to have been caught up in a system which assumed limitless resources and ignored the production of waste products. This system worked when resources did appear to be limitless and when waste was easily disposed of and self-cleansing. Neither of these qualities exist any longer. The economic sub-system takes in resources and excretes waste, and is thus irrevocably and closely linked to the ecosystem. Input and output are finite, and the main variable is the one-way flow of matter-energy. Such a way of looking at things raises the question of how big the economic system should be in relation to the physical dimensions of the global system. This also necessarily questions the concept of growth economics and the impossibility of generalizing western standards to the world as a whole. Since a quarter of the population uses most of the resources and produces most of the waste, can we increase both in the other three-quarters? What are the limits that must exist as in every finite system?

The American statement in Bergen mentioned cost of cleaning the planet. The planet and its resources has no cost: it is invaluable; it is absolute; and it is being destroyed. There is no cost because the price of ignoring the effect of our two hundred year "spending spree" is annihilation just as sure as the cost of taking part in a nuclear war. The change required however will have a cost. The figure has not been

computed but one can state with some degree of confidence that it would be less than the money and human intellect that is currently spent, and apparently will be spent, on preparation for war. Another common fact is the evident extreme reluctance of the rulers of the world to give up their weapons, particularly those who, like us, profit by their manufacture.

CONCLUSION

What, then, do we do about all this? My catalogue of problems is sometimes characterized as doom-saying, but this implies that there is nothing to be done. Facts there may be that warn us of what is happening to our world, but there is one overriding consideration which restores the balance. Knowledge and its application in technology has brought about many of the problems we now face. The discovery of free energy in fossil fuels during the Industrial Revolution initiated a unique time in history and stimulated the gigantic changes in our world, including runaway population growth, brought about by applied science and technology. The problems created may be solved by the same processes, tempered by application of moral and social wisdom arising from dimly perceived needs of the future. We can sense, describe and measure the changes taking place around us. Therefore we must resolve to take action based on a knowledge of the facts. This is surely the most exciting challenge humanity has ever faced. My excitement in the challenge is encouraged by the belief that we are capable, as a race, of perceiving the problems and planning the necessary changes in the way we use the resources of the planet, i.e. how we restore balance with nature. This is the challenge of Global Change and the central need, as I see it, is for a major recognition that all problems facing humankind are necessarily scientific, technical, social, political, economic, and above all, moral and ethical.

This constitutes, if you like, my apology as an old man, for having the temerity to try to influence events, however slightly, while enjoying the challenges of working with a wide variety of intellects in the hope that I can influence their approach to new problems which boil down to one ultimate question — how is life to continue on this planet?

Publications of The Royal Society of Canada Publications de la Société royale du Canada

Proceedings and Transactions / Délibérations et Mémoires

The *Proceedings* and the *Transactions* appear annually in two separate volumes. Fellows receive copies of the current issues without charge. For current issues the prices to non-Fellows are $6.75 for *Proceedings* and $20.00 for *Transactions*. Some earlier volumes are available for purchase at prices depending on scarcity and condition. Inquiries and orders should be sent to the Royal Society of Canada, P.O. Box 9734, Ottawa, Ontario, Canada K1G 5J4.

Les *Délibérations* et les *Mémoires* paraissent chaque année en deux volumes distincts qui sont distribués gratuitement aux membres. Le grand public peut acheter les dernières livraisons des *Délibérations* à 6,75 $ l'exemplaire et les *Mémoires* à 20,00 $. Il est encore possible de commander certains volumes antérieurs, le prix dépendant de l'état de la publication et du nombre d'exemplaires disponibles. Prière d'adresser toutes demandes de renseignements ou toutes commandes à la Société royale du Canada, C.P. 9734, Ottawa (Ontario) Canada K1G 5J4.

Calendar / Annuaire

The *Calendar* is published annually. It contains a complete listing of Fellows, alphabetically and by Academy (discipline or division); Officers of Council, Executive, Society and Academy Committees; in addition to schedules for the coming year and information and guidelines about symposia, donations, publications, prizes and awards, lectureships, and other Society activities. It is free to members. The cost for non-members is $3.75.

L'*Annuaire* est une publication annuelle dans laquelle sont publiées les listes des membres du Conseil d'administration et de l'Exécutif de la Société royale du Canada et de chacune des académies. On y trouve également une liste complète des membres par ordre alphabétique et par académie (discipline/division), un calendrier pour l'an prochain et l'information concernant les symposia, les dons, les publications, les prix et les distinctions, et les autres activités de la Société. Cette publication est offerte gratuitement aux membres et est disponible aux non-membres pour la somme de 3,75 $.

Corporate Plan / Plan d'ensemble

This was first published in 1989 and will be updated periodically. It is free to members; the cost to non-members is $6.00.

Le *Plan d'ensemble* vient d'être publiée pour la première fois en 1989 et sera mis à jour au besoin. Offerte gratuitement aux membres, cette publication est disponible aux non-membres pour la somme de 6,00 $.

Booklet / Brochure

The Royal Society of Canada: Profile of the National Academy is a summary statement on the Society and its activities and is available, without charge, from the Secretariat.

La Société royale du Canada : Profil de l'Académie nationale, l'exposé sommaire de la Société et ses activités, est disponible gratuitement au Secrétariat.

Présentations

Cette publication réunit les discours de présentations des nouveaux membres de l'Académie I par leurs parrains et leurs réponses qui traitent de leur œuvre ou d'un sujet de leur choix.

Tous les numéros de cette publication annuelle, du premier en 1943-44 jusqu'à date sont disponibles. Les numéros 39 à 43 coûtent 6,00 $ l'exemplaire. La série complète coûte 80,00 $.

Index 1882-1982

The *Index* consists of author and subject entries for all papers published in the *Transactions* and other publications of the Society. Available for $30.

L'*Index* auteurs-matières renvoie ainsi à toutes les communications des *Mémoires* et d'autres publications de la Société. Prix: 30,00 $.

Studia Varia

Most volumes are now out of print. Those volumes that are available through the Royal Society are listed below. All others continue to be available through the on-demand publishing program of University Microfilms, Ann Arbor, Michigan, U.S.A.

La plupart de ces volumes sont épuisés sauf les titres indiques ci-dessous qui sont disponibles au Secrétariat de la Société. On peut se procurer les autres volumes en s'adressant à University Microfilms, Ann Arbor, Michigan, É-U.

Canadian Population and Northern Colonization, V.W. Bladen, ed., 1962, pp. 168, $4.50

Water Resources of Canada/Ressources hydrauliques, C.E. Dolman, ed., 1967, pp. 249, $8.50

Visages de la civilisation au Canada français, L. Lamontagne, éd., 1970, pp. 130, SBN 8020-1659-6, 7,50 $

Le Canada français d'aujourd'hui, L. Lamontagne, éd., 1970, pp. 161, SBN 8020-1658-8, 7,50 $

Special Publications / Publications spéciales

Collections of specialized scientific papers on a single theme or related themes have been published for the Society from time to time. Inquiries should be directed to the Secretariat. A list of out-of-print volumes may be obtained from the Society; these volumes are available through the on-demand publishing program of University Microfilms, Ann Arbor, Michigan, U.S.A.

On a publié de temps en temps, pour le compte de la Société, des collections d'ouvrages portant sur un thème unique ou sur des questions connexes. Veuillez adresser toute demande d'information ou toute commande au Secrétariat. On peut obtenir de la Société la liste des volumes épuisés; ces volumes sont disponibles sur demande à University Microfilms, Ann Arbor, Michigan, É-U.

Soils in Canada, Robert F. Legget, ed., 1961, water damaged copies, pp. 240. ISBN 0-8020-1351-1. $5.50

Marine Distribution, M.J. Dunbar, ed., 1963, pp. 110, $5.00

Studies in Analytical Geochemistry, Denis M. Shaw, ed., 1963, pp. 139, $5.95

Geochronology in Canada, F. Fitz Osborne, ed., 1964, pp. 156, $5.95

Appalachian Tectonics, T.H. Clark, ed., 1967, pp. 99, $6.50

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Glacial Till — An Interdisciplinary Study, Robert F. Legget, ed., 1976, pp. 412. ISBN 0 920064 11 6. $15.00

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Nuclear Issues in the Canadian Energy Context, E.P.Hincks, ed., 1979, pp. 279. ISBN 0 920064 13 2. $8.00

Nuclear Winter and Associated Effects: A Canadian Appraisal of the Environmental Impact of Nuclear War/L'hiver nucléaire et ses effets connexes, F.K. Hare and A. Forester, eds., 1985, pp. 382. ISBN 0 920064 21 3. $15.00

Planet Under Stress: The Challenge of Global Change/La Terre en péril : Métamorphose d'une planète, Constance Mungall and Digby J. McLaren, eds. 1990. ISBN 19 5407318. pp. 352, published and sold by Oxford University Press/ISBN 2-7603-0287-3. pp. 448, publié et vendu par Les Presses de l'Université d'Ottawa, 18,95 $.

Claiming the Future: Women in Scholarship/Se bâtir un avenir : Les femmes et le savoir, Elizabeth May and Francess G. Halpenny, pp. 120. ISBN 0-920064-35-3. $10.00

Proceedings of Symposia / Comptes rendus des colloques

These volumes, consisting of papers presented at symposia held from time to time by the Society, are published, in most cases, as simply as possible to keep costs to a minimum and to ensure rapid publication. The contents in all cases are presented in English or French, depending on the language of the speaker. They are sold by the Secretariat of the Society unless indicated otherwise.

Ces volumes réunissent les communications qui sont présentées aux colloques que la Société organise périodiquement. Afin d'en réduire le coût et d'en assurer l'actualité elles sont publiées, la plupart du temps, dans un format aussi simple que possible, en anglais ou en français, selon la langue utilisée par le conférencier. On peut se les procurer au Secrétariat de la Société, sauf cas spécial.

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L'Avenir des relations industrielles dans les Amériques, Actes du 1er Congrès des relations industrielles des Amériques/The Future of Industrial Relations in the Americas, Proceedings of the 1st Congress of Industrial Relations of the Americas. Relations Industrielles/Industrial Relations, Vol. 44, No. 1, 1989 ISSN 0034-379X Available from/disponible de : Les Presses de l'Université Laval, C.P. 2477, Québec (Quebec) G1K 7R4

Reports / Rapports

Available for the cost of postage and handling from the Society's office unless otherwise indicated. Limited Stocks.

Disponibles au bureau de la Société moyennant les frais d'envoi sauf indication contraire. Stocks limités.

Acid Deposition in North America, F.K. Hare, ed., 1983, pp. 92. Available from Environment Canada, Place Vincent Massey, 351 St. Joseph Blvd, Hull, Québec K1A 0H3

Long-range Transport of Airborne Pollutants in North America, F.K. Hare, ed. 1984. Available from Atmospheric Environment Service, 4905 Dufferin, North York, Ontario M3H 5T4

The Great Lakes Water Quality Agreement: An Evolving Instrument for Ecosystem Management. O.L. Loucks & H.A. Regier, eds., National Academy Press, Washington, D.C., 1985, pp. 224.

Lead in Gasoline: a Review of the Canadian Policy Issue/Du Plomb dans l'essence: Étude pour une politique au Canada, F.K. Hare, ed., 1985. Available from Environment Canada/ S'adresser à Environnement Canada.

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Human Dimensions of Global Change: The Challenge to the Humanities and the Social Sciences, D. Braybrooke and Gilles Paquet, eds., 1987.

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AIDS: A Perspective for Canadians (Background Papers)/Le SIDA: L'état de la question au pays (Documents de travail), M. Chrétien, ed. 1988, pp. 407, $40.00

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Science and the Public, E.R. Ward Neale, ed., 1988, pp. 35. ISBN 0-920064-25-6. First copie free, $1.50 additional copies.

A Progress Report, Canadian Global Change Program Report No. 2, 1988, pp. 46. ISSN 1183-0808

Canada and the Changing Atmosphere/Le Canada et l'atmosphère en évolution, F.K. Hare, 1989. ISBN 0 662 56747 1. pp. 44. (Available from the Canadian Meteorological and Oceanographic Society/Disponible de la Société canadienne de météorologie et d'océanographie).

Contribution of Satellite Observations to the Canadian Global Change Program/Contribution des observations par satellite au programme canadien des changements à l'échelle du globe, Canadian Global Change Program Report No. 3/Programme canadien des changements à l'échelle du globe, Rapport n° 3, 1989, pp. 100. ISSN 1183-0808

La science et le public, E.R.W. Neale, éd., 1989, pp. 48. ISBN 0-920064-27-2. Première copie gratuite, copies additionnelles 1,50 $.

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OYEZ[3], *News Notes on Scientific Societies and the Public/Carnet de nouvelles sur les sociétés scientifiques et le public*, The National Committee on the Public Awareness of Science/ Comité national pour le sensibilisation du public aux sciences. ISSN 1180-1867

Delta, Newsletter of the Canadian Global Change Program/Bulletin du programme canadien des changements à l'échelle du globe, Glenn Sutter, ed. ISSN 1180-1859

Profile, Newsletter of the National Academy/Profil, bulletin de l'Académie nationale. ISSN 1183-5001